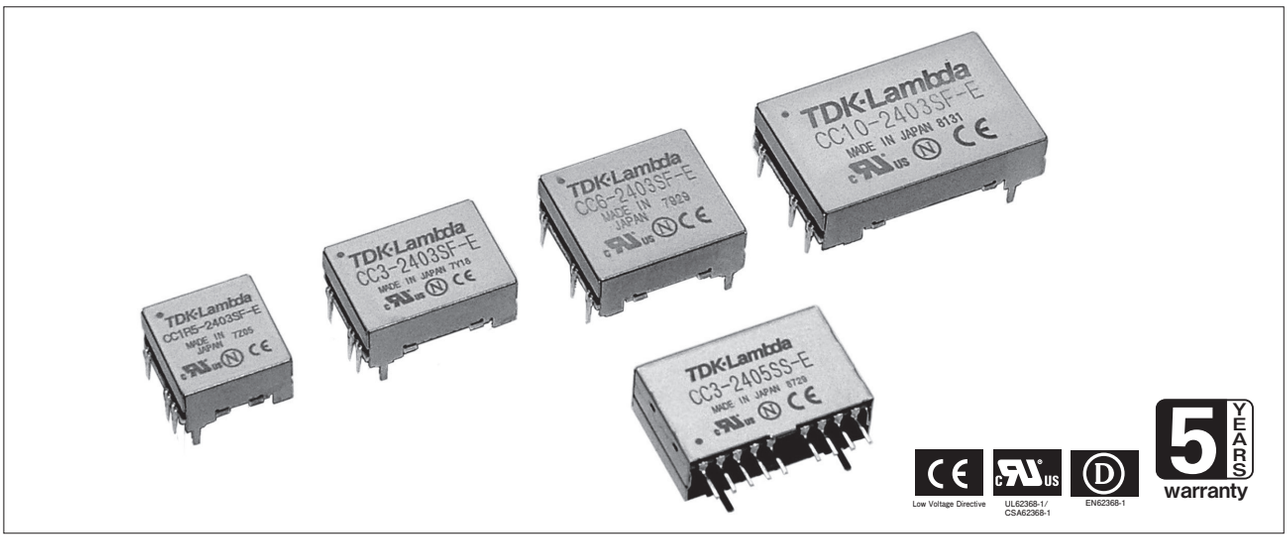
CC-E

Insulation type DC-DC converter



■ Features

- ●Mounting area halved compared to existing products
- ●Nonuse of tantalum capacitor or aluminum electrolytic capacitor
- ●Remote On/Off function incorporated in all series of products
- ●High accuracy of ± 3% in output voltage (10W of lower single output)
- ●5-side metal-shielded low noise design
- ●Lightweight design with no resin filled up
- ●Supports DIP insertion,SMD mounting and SIP vertical insertion (3W products)

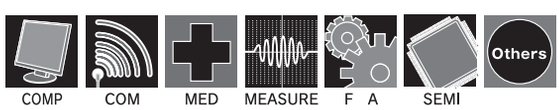
■ Model-naming method

CC 3 - 05 05 S F -E

- Shape: F: Horizontally-mounted DIP type; R: Horizontally-mounted SMD type; S: Vertically-mounted SIP type
- Symbol for number of outputs: S: Single output, D: Dual outputs
- Nominal output voltage: 03: 3.3V, 05: 5V, 12: 15V
- Nominal input voltage: 05: 5V, 12: 12V, 24: 24V, 48: 48V
- Maximum output power: 1R5: 1.5W, 3: 3W, 6: 6W, 10: 10W
- Representing series name by combination with "-E"at the end

■ Conformity to RoHS Directive

■ Applications



■ Product Line up

Output power	Input voltage	Model name (output voltage: 3.3V)				Model name (output voltage: 5V)				Model name (output voltage: 12V/15V)				Model name (output voltage: ±12V/±15V)			
		Output current	DIP type	SMD type	SIP type	Output current	DIP type	SMD type	SIP type	Output current	DIP type	SMD type	SIP type	Output current	DIP type	SMD type	SIP type
1.5W	5V	0.4A	CC1R5-0503SF-E	CC1R5-0503SR-E	-	0.3A	CC1R5-0505SF-E	CC1R5-0505SR-E	-	0.125A (0.1A)	CC1R5-0512SF-E	CC1R5-0512SR-E	-	0.06A (0.05A)	CC1R5-0512DF-E	CC1R5-0512DR-E	-
	12V	0.4A	CC1R5-1203SF-E	CC1R5-1203SR-E	-	0.3A	CC1R5-1205SF-E	CC1R5-1205SR-E	-	0.125A (0.1A)	CC1R5-1212SF-E	CC1R5-1212SR-E	-	0.06A (0.05A)	CC1R5-1212DF-E	CC1R5-1212DR-E	-
	24V	0.4A	CC1R5-2403SF-E	CC1R5-2403SR-E	-	0.3A	CC1R5-2405SF-E	CC1R5-2405SR-E	-	0.125A (0.1A)	CC1R5-2412SF-E	CC1R5-2412SR-E	-	0.06A (0.05A)	CC1R5-2412DF-E	CC1R5-2412DR-E	-
	48V	0.4A	CC1R5-4803SF-E	CC1R5-4803SR-E	-	0.3A	CC1R5-4805SF-E	CC1R5-4805SR-E	-	0.125A (0.1A)	CC1R5-4812SF-E	CC1R5-4812SR-E	-	0.06A (0.05A)	CC1R5-4812DF-E	CC1R5-4812DR-E	-
3W	5V	0.8A	CC3-0503SF-E	CC3-0503SR-E	CC3-0503SS-E	0.6A	CC3-0505SF-E	CC3-0505SR-E	CC3-0505SS-E	0.25A (0.2A)	CC3-0512SF-E	CC3-0512SR-E	CC3-0512SS-E	0.125A (0.1A)	CC3-0512DF-E	CC3-0512DR-E	CC3-0512DS-E
	12V	0.8A	CC3-1203SF-E	CC3-1203SR-E	CC3-1203SS-E	0.6A	CC3-1205SF-E	CC3-1205SR-E	CC3-1205SS-E	0.25A (0.2A)	CC3-1212SF-E	CC3-1212SR-E	CC3-1212SS-E	0.125A (0.1A)	CC3-1212DF-E	CC3-1212DR-E	CC3-1212DS-E
	24V	0.8A	CC3-2403SF-E	CC3-2403SR-E	-	0.6A	CC3-2405SF-E	CC3-2405SR-E	CC3-2405SS-E	0.25A (0.2A)	CC3-2412SF-E	CC3-2412SR-E	CC3-2412SS-E	0.125A (0.1A)	CC3-2412DF-E	CC3-2412DR-E	CC3-2412DS-E
	48V	0.8A	CC3-4803SF-E	CC3-4803SR-E	CC3-4803SS-E	0.6A	CC3-4805SF-E	CC3-4805SR-E	CC3-4805SS-E	0.25A (0.2A)	CC3-4812SF-E	CC3-4812SR-E	-	0.125A (0.1A)	CC3-4812DF-E	CC3-4812DR-E	CC3-4812DS-E
6W	5V	1.2A	CC6-0503SF-E	CC6-0503SR-E	-	1A	CC6-0505SF-E	CC6-0505SR-E	-	0.5A (0.4A)	CC6-0512SF-E	CC6-0512SR-E	-	0.25A (0.2A)	CC6-0512DF-E	CC6-0512DR-E	-
	12V	1.2A	CC6-1203SF-E	CC6-1203SR-E	-	1.2A	CC6-1205SF-E	CC6-1205SR-E	-	0.5A (0.4A)	CC6-1212SF-E	CC6-1212SR-E	-	0.25A (0.2A)	CC6-1212DF-E	CC6-1212DR-E	-
	24V	1.2A	CC6-2403SF-E	CC6-2403SR-E	-	1.2A	CC6-2405SF-E	CC6-2405SR-E	-	0.5A (0.4A)	CC6-2412SF-E	CC6-2412SR-E	-	0.25A (0.2A)	CC6-2412DF-E	CC6-2412DR-E	-
	48V	1.2A	CC6-4803SF-E	CC6-4803SR-E	-	1.2A	CC6-4805SF-E	CC6-4805SR-E	-	0.5A (0.4A)	CC6-4812SF-E	CC6-4812SR-E	-	0.25A (0.2A)	CC6-4812DF-E	CC6-4812DR-E	-
10W	5V	2.5A	CC10-0503SF-E	CC10-0503SR-E	-	2A	CC10-0505SF-E	CC10-0505SR-E	-	0.8A (0.64A)	CC10-0512SF-E	CC10-0512SR-E	-	0.4A (0.32A)	CC10-0512DF-E	CC10-0512DR-E	-
	12V	2.5A	CC10-1203SF-E	CC10-1203SR-E	-	2A	CC10-1205SF-E	CC10-1205SR-E	-	1A (0.8A)	CC10-1212SF-E	CC10-1212SR-E	-	0.45A (0.36A)	CC10-1212DF-E	CC10-1212DR-E	-
	24V	2.5A	CC10-2403SF-E	CC10-2403SR-E	-	2A	CC10-2405SF-E	CC10-2405SR-E	-	1A (0.8A)	CC10-2412SF-E	CC10-2412SR-E	-	0.45A (0.36A)	CC10-2412DF-E	CC10-2412DR-E	-
	48V	2.5A	CC10-4803SF-E	CC10-4803SR-E	-	2A	CC10-4805SF-E	CC10-4805SR-E	-	1A (0.8A)	CC10-4812SF-E	CC10-4812SR-E	-	0.45A (0.36A)	CC10-4812DF-E	CC10-4812DR-E	-

・All specifications are subject to change without notice.

CC1R5-E Specifications

ITEMS/UNITS		MODEL	CC1R5-0503Sx-E	CC1R5-0505Sx-E	CC1R5-0512Sx-E		CC1R5-0512Dx-E	
Input	Nominal Voltage	V	DC5.0					
	Voltage Range	V	DC4.5-9.0					
	Efficiency (typ) (*1)	%	71	77	80		79	
	Current (typ) (*1)	A	0.372	0.390	0.375		0.380	
Output	Nominal Voltage	VDC	3.3	5	12	15	± 12	± 15
	Maximum Current	A	0.400	0.300	0.125	0.100	0.060	0.050
	Maximum Power (*2)	W	1.32	1.5				
	Maximum Line Regulation (Within input voltage range)	mV	20		40		80	
	Maximum Load Regulation (0-100% load) (*3)	mV	40		100		600	
	Temperature Coefficient (Ambient temperature−40˚C to +50˚C)		80mV		200mV		300mV	
	Max Power Total Regulation (max) (*4)	%	± 3				± 5	
	Maximum Ripple & Noise (typ/max) (*5)	mVp-p	40/120		30/120			
	Voltage Adjustable Range	VDC	3.15-3.6	4.75-6.0	11.4-15.0		± 11.4- ± 15.0	
Function	Over Current Protection (*6)		Available					
	Over Voltage Protection		Not available					
	Remote ON/OFF Control		Available					
Environment	Operating Ambient Temperature	℃	-40 to +85					
	Storage Ambient Temperature	℃	-40 to +85					
	Operating Ambient Humidity	% RH	5-95 (the conditions of maximum 38˚C in wet bulb temperature and non-condensation should be ensured.)					
	Storage Ambient Humidity	% RH	5-95 (the conditions of maximum 38˚C in wet bulb temperature and non-condensation should be ensured.)					
	Vibration		10-55Hz, 15 minutes sweep and 1.52mm total amplitude, 3 directions, 2h for each					
	Shock		980m/s² (100G), 6ms, 6 directions, 3 times for each, in non-operation					
Isolation	Withstand Voltage		Between input terminal and case, between input terminal and output terminal, and between output terminal and case: 500VAC (for 1 minute)					
	Isolation Resistance		Between input terminal and output terminal: 500VDC, 50MΩ min					
Standards	Safety Standards		Approved by UL62368-1, CSA62368-1, EN62368-1, UL60950-1, CSA60950-1, EN60950-1. (Expire date of 60950-1: 20/12/2020)					
Mechanical	Weight (typ)	g	3.2					
	Size (W x H x D)	mm	DIP: 16.51 x 8.5 x 16.6 / SMD: 16.51 x 8.8 x 16.6					

Note: "x" in model names is to be replaced by a symbol which represents the terminal configuration (F: DIP/R: SMD) for actual model names.
Note: With nominal input/output voltage, maximum output current, and Ta=25˚C, if not specified separately.
Note: For 12V/±12V models, output voltage can be set to 15V/±15V by connecting the output adjustment terminal TRM to -Vout.
Note: For ± 12V model, output voltage can be set to 24V or 30V single output by making the COM terminal open.

(*1) With nominal input voltage, maximum output current, and Ta=25˚C.
(*2) The maximum output power value is between -40˚C and +50˚C. For use in outside this temperature range, derating is needed.
(*3) In balanced load for dual outputs ("balanced load" means a condition where the +output and -output of load current are equal).
(*4) Output voltage includes input change, load change (balanced load), and temperature change.
(*5) In 50MHz, Ta=25˚C.
(*6) Output current restriction method. Automatically resumes when the causes are removed. Never operate the unit under output-shorted or overload conditions for over 30 seconds.

ITEMS/UNITS		MODEL	CC1R5-1203Sx-E	CC1R5-1205Sx-E	CC1R5-1212Sx-E		CC1R5-1212Dx-E	
Input	Nominal Voltage	V	DC12					
	Voltage Range	V	DC9.0-18					
	Efficiency (typ) (*1)	%	73	78	82		81	
	Current (typ) (*1)	A	0.151	0.160	0.152		0.154	
Output	Nominal Voltage	VDC	3.3	5	12	15	± 12	± 15
	Maximum Current	A	0.400	0.300	0.125	0.100	0.060	0.050
	Maximum Power (*2)	W	1.32	1.5				
	Maximum Line Regulation (Within input voltage range)	mV	20		40		80	
	Maximum Load Regulation (0-100% load) (*3)	mV	40		100		600	
	Temperature Coefficient (Ambient temperature−40˚C to +50˚C)		80mV		200mV		300mV	
	Max Power Total Regulation (max) (*4)	%	± 3				± 5	
	Maximum Ripple & Noise (typ/max) (*5)	mVp-p	40/120		30/120			
	Voltage Adjustable Range	VDC	3.15-3.6	4.75-6.0	11.4-15.0		± 11.4 - ± 15.0	
Function	Over Current Protection (*6)		Available					
	Over Voltage Protection		Not available					
	Remote ON/OFF Control		Available					
Environment	Operating Ambient Temperature	℃	-40 to +85					
	Storage Ambient Temperature	℃	-40 to +85					
	Operating Ambient Humidity	% RH	5-95 (the conditions of maximum 38˚C in wet bulb temperature and non-condensation should be ensured.)					
	Storage Ambient Humidity	% RH	5-95 (the conditions of maximum 38˚C in wet bulb temperature and non-condensation should be ensured.)					
	Vibration		10-55Hz, 15 minutes sweep and 1.52mm total amplitude, 3 directions, 2h for each					
	Shock		980m/s² (100G), 6ms, 6 directions, 3 times for each, in non-operation					
Isolation	Withstand Voltage		Between input terminal and case, between input terminal and output terminal, and between output terminal and case: 500VAC (for 1 minute)					
	Isolation Resistance		Between input terminal and output terminal: 500VDC, 50MΩ min					
Standards	Safety Standards		Approved by UL62368-1, CSA62368-1, EN62368-1, UL60950-1, CSA60950-1, EN60950-1. (Expire date of 60950-1: 20/12/2020)					
Mechanical	Weight (typ)	g	3.2					
	Size (W x H x D)	mm	DIP: 16.51 x 8.5 x 16.6 / SMD: 16.51 x 8.8 x 16.6					

Note: "x" in model names is to be replaced by a symbol which represents the terminal configuration (F: DIP/R: SMD) for actual model names.
Note: With nominal input/output voltage, maximum output current, and Ta=25˚C, if not specified separately.
Note: For 12V/±12V models, output voltage can be set to 15V/±15V by connecting the output adjustment terminal TRM to -Vout.
Note: For ± 12V model, output voltage can be set to 24V or 30V single output by making the COM terminal open.

(*1) With nominal input voltage, maximum output current, and Ta=25˚C.
(*2) The maximum output power value is between -40˚C and +50˚C. For use in outside this temperature range, derating is needed.
(*3) In balanced load for dual outputs ("balanced load" means a condition where the +output and -output of load current are equal).
(*4) Output voltage includes input change, load change (balanced load), and temperature change.
(*5) In 50MHz, Ta=25˚C.
(*6) Output current restriction method. Automatically resumes when the causes are removed. Never operate the unit under output-shorted or overload conditions for over 30 seconds.

・All specifications are subject to change without notice.

ITEMS/UNITS		MODEL	CC1R5-2403Sx-E	CC1R5-2405Sx-E	CC1R5-2412Sx-E		CC1R5-2412Dx-E	
Input	Nominal Voltage	V	DC24					
	Voltage Range	V	DC18-36					
	Efficiency (typ) (*1)	%	72	77	81		79	
	Current (typ) (*1)	A	0.076	0.081	0.077		0.079	
Output	Nominal Voltage	VDC	3.3	5	12	15	± 12	± 15
	Maximum Current	A	0.400	0.300	0.125	0.100	0.060	0.050
	Maximum Power (*2)	W	1.32	1.5				
	Maximum Line Regulation (Within input voltage range)	mV	20		40		80	
	Maximum Load Regulation (0-100% load) (*3)	mV	40		100		600	
	Temperature Coefficient (Ambient temperature−40˚C to +50˚C)		80mV		200mV		300mV	
	Max Power Total Regulation (max) (*4)	%	± 3				± 5	
	Maximum Ripple & Noise (typ/max) (*5)	mVp-p	40/120		30/120			
	Voltage Adjustable Range	VDC	3.15-3.6	4.75-6.0	11.4-15.0		± 11.4- ± 15.0	
Function	Over Current Protection (*6)		Available					
	Over Voltage Protection		Not available					
	Remote ON/OFF Control		Available					
Environment	Operating Ambient Temperature	℃	-40 to +85					
	Storage Ambient Temperature	℃	-40 to +85					
	Operating Ambient Humidity	% RH	5-95 (the conditions of maximum 38˚C in wet bulb temperature and non-condensation should be ensured.)					
	Storage Ambient Humidity	% RH	5-95 (the conditions of maximum 38˚C in wet bulb temperature and non-condensation should be ensured.)					
	Vibration		10-55Hz, 15 minutes sweep and 1.52mm total amplitude, 3 directions, 2h for each					
	Shock		980m/s² (100G), 6ms, 6 directions, 3 times for each, in non-operation					
Isolation	Withstand Voltage		Between input terminal and case, between input terminal and output terminal, and between output terminal and case: 500VAC (for 1 minute)					
	Isolation Resistance		Between input terminal and output terminal: 500VDC, 50MΩ min					
Standards	Safety Standards		Approved by UL62368-1, CSA62368-1, EN62368-1, UL60950-1, CSA60950-1, EN60950-1. (Expire date of 60950-1: 20/12/2020)					
Mechanical	Weight (typ)	g	3.2					
	Size (W x H x D)	mm	DIP: 16.51 x 8.5 x 16.6 / SMD: 16.51 x 8.8 x 16.6					

Note: "x" in model names is to be replaced by a symbol which represents the terminal configuration (F: DIP/R: SMD) for actual model names.
Note: With nominal input/output voltage, maximum output current, and Ta=25˚C, if not specified separately.
Note: For 12V/±12V models, output voltage can be set to 15V/±15V by connecting the output adjustment terminal TRM to -Vout.
Note: For ± 12V model, output voltage can be set to 24V or 30V single output by making the COM terminal open.

(*1) With nominal input voltage, maximum output current, and Ta=25˚C.
(*2) The maximum output power value is between -40˚C and +50˚C. For use in outside this temperature range, derating is needed.
(*3) In balanced load for dual outputs ("balanced load" means a condition where the +output and -output of load current are equal).
(*4) Output voltage includes input change, load change (balanced load), and temperature change.
(*5) In 50MHz, Ta=25˚C.
(*6) Output current restriction method. Automatically resumes when the causes are removed. Never operate the unit under output-shorted or overload conditions for over 30 seconds.

ITEMS/UNITS		MODEL	CC1R5-4803Sx-E	CC1R5-4805Sx-E	CC1R5-4812Sx-E		CC1R5-4812Dx-E	
Input	Nominal Voltage	V	DC48					
	Voltage Range	V	DC36-76					
	Efficiency (typ) (*1)	%	70	76	80		79	
	Current (typ) (*1)	A	0.039	0.041	0.039		0.040	
Output	Nominal Voltage	VDC	3.3	5	12	15	± 12	± 15
	Maximum Current	A	0.400	0.300	0.125	0.100	0.060	0.050
	Maximum Power (*2)	W	1.32	1.5				
	Maximum Line Regulation (Within input voltage range)	mV	20		40		80	
	Maximum Load Regulation (0-100% load) (*3)	mV	40		100		600	
	Temperature Coefficient (Ambient temperature−40˚C to +50˚C)		80mV		200mV		300mV	
	Max Power Total Regulation (max) (*4)	%	± 3				± 5	
	Maximum Ripple & Noise (typ/max) (*5)	mVp-p	40/120		30/120			
	Voltage Adjustable Range	VDC	3.15-3.6	4.75-6.0	11.4-15.0		± 11.4- ± 15.0	
Function	Over Current Protection (*6)		Available					
	Over Voltage Protection		Not available					
	Remote ON/OFF Control		Available					
Environment	Operating Ambient Temperature	℃	-40 to +85					
	Storage Ambient Temperature	℃	-40 to +85					
	Operating Ambient Humidity	% RH	5-95 (the conditions of maximum 38˚C in wet bulb temperature and non-condensation should be ensured.)					
	Storage Ambient Humidity	% RH	5-95 (the conditions of maximum 38˚C in wet bulb temperature and non-condensation should be ensured.)					
	Vibration		10-55Hz, 15 minutes sweep and 1.52mm total amplitude, 3 directions, 2h for each					
	Shock		980m/s² (100G), 6ms, 6 directions, 3 times for each, in non-operation					
Isolation	Withstand Voltage		Between input terminal and case, between input terminal and output terminal, and between output terminal and case: 500VAC (for 1 minute)					
	Isolation Resistance		Between input terminal and output terminal: 500VDC, 50MΩ min					
Standards	Safety Standards		Approved by UL62368-1, CSA62368-1, EN62368-1, UL60950-1, CSA60950-1, EN60950-1. (Expire date of 60950-1: 20/12/2020)					
Mechanical	Weight (typ)	g	3.2					
	Size (W x H x D)	mm	DIP: 16.51 x 8.5 x 16.6 / SMD: 16.51 x 8.8 x 16.6					

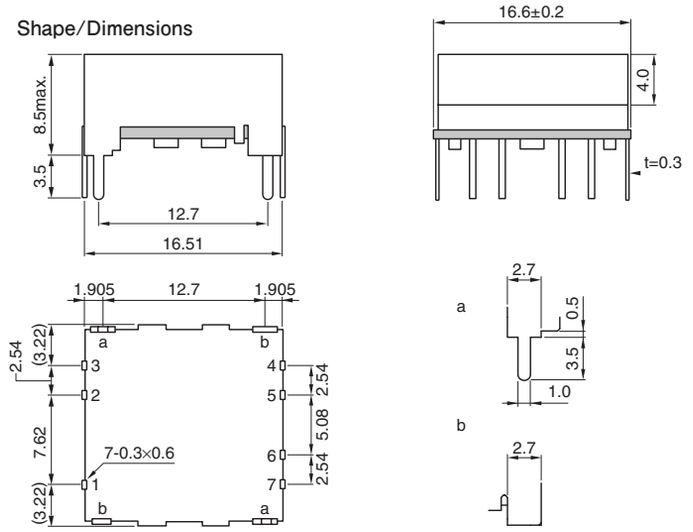
Note: "x" in model names is to be replaced by a symbol which represents the terminal configuration (F: DIP/R: SMD) for actual model names.
Note: With nominal input/output voltage, maximum output current, and Ta=25˚C, if not specified separately.
Note: For 12V/±12V models, output voltage can be set to 15V/±15V by connecting the output adjustment terminal TRM to -Vout.
Note: For ± 12V model, output voltage can be set to 24V or 30V single output by making the COM terminal open.

(*1) With nominal input voltage, maximum output current, and Ta=25˚C.
(*2) The maximum output power value is between -40˚C and +50˚C. For use in outside this temperature range, derating is needed.
(*3) In balanced load for dual outputs ("balanced load" means a condition where the +output and -output of load current are equal).
(*4) Output voltage includes input change, load change (balanced load), and temperature change.
(*5) In 50MHz, Ta=25˚C.
(*6) Output current restriction method. Automatically resumes when the causes are removed. Never operate the unit under output-shorted or overload conditions for over 30 seconds.

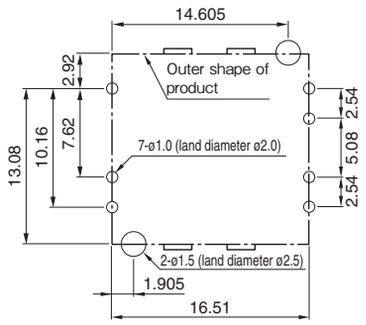
Outline Drawing

CC1R5-xxxxxF-E (DIP type)

Shape/Dimensions



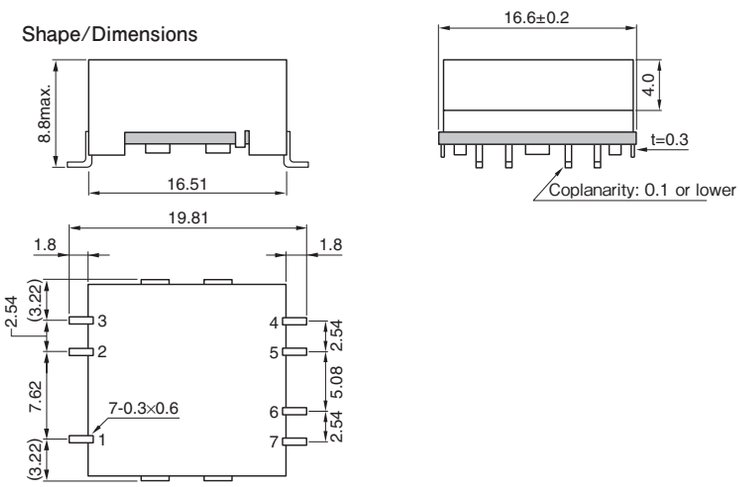
Recommended measurements for mounting board



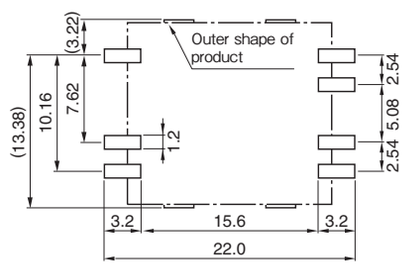
Unit: mm
Allowable tolerance is ±0.5 if not specified separately.

CC1R5-xxxxxR-E (SMD type)

Shape/Dimensions



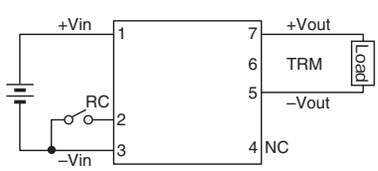
Recommended measurements for mounting board



Unit: mm
Allowable tolerance is ±0.5 if not specified separately.

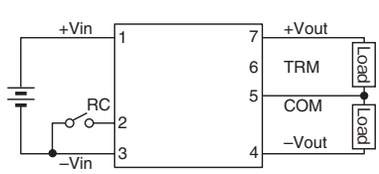
Connection diagram

CC1R5-xxxxSx-E



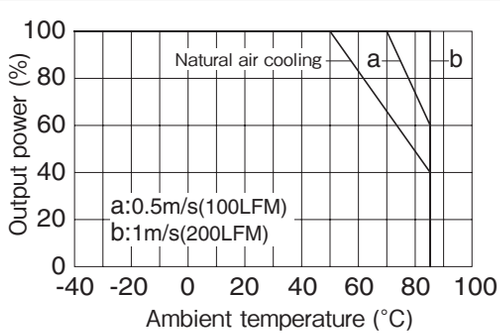
Terminal connections	
No.1	+Vin
No.2	RC
No.3	–Vin
No.4	NC
No.5	–Vout
No.6	TRM
No.7	+Vout

CC1R5-xxxxDx-E



Terminal connections	
No.1	+Vin
No.2	RC
No.3	–Vin
No.4	–Vout
No.5	Common out
No.6	TRM
No.7	+Vout

Derating Curve



Output power derating by ambient temperature
(common specification)

CC3-E Specifications

ITEMS/UNITS \ MODEL			CC3-0503Sx-E	CC3-0505Sx-E	CC3-0512Sx-E		CC3-0512Dx-E	
Input	Nominal Voltage	V	DC5.0					
	Voltage Range	V	DC4.5-9.0					
	Efficiency (typ) (*1)	%	73	77	82		81	
	Current (typ) (*1)	A	0.723	0.779	0.732		0.741	
Output	Nominal Voltage	VDC	3.3	5	12	15	± 12	± 15
	Maximum Current	A	0.800	0.600	0.250	0.200	0.125	0.100
	Maximum Power (*2)		2.64	3				
	Maximum Line Regulation(Within input voltage range)	mV	20		40		80	
	Maximum Load Regulation (0-100% load) (*3)	mV	40		100		600	
	Temperature Coefficient (Ambient temperature -40℃ to +50℃)		80mV		200mV		300mV	
	Max Power Total Regulation (max)(*4)	%	± 3				± 5	
	Maximum Ripple & Noise (typ/max) (*5)	mVp-p	40/120		30/120			
	Voltage Adjustable Range	VDC	3.15-3.6	4.75-6.0	11.4-15.0		± 11.4- ± 15.0	
Function	Over Current Protection (*6)		Available					
	Over Voltage Protection		Not available					
	Remote ON/OFF Control		Available					
Environment	Operating Ambient Temperature	℃	-40 to +85					
	Storage Ambient Temperature	℃	-40 to +85					
	Operating Ambient Humidity	% RH	5-95 (the conditions of maximum 38℃ in wet bulb temperature and non-condensation should be ensured.)					
	Storage Ambient Humidity	% RH	5-95 (the conditions of maximum 38℃ in wet bulb temperature and non-condensation should be ensured.)					
	Vibration		10-55Hz, 15 minutes sweep and 1.52mm total amplitude, X/Y/Z 3 directions, 2h for each					
	Shock		980m/s² (100G), 6ms, 6 directions, 3 times for each, in non-operation					
Isolation	Withstand Voltage		Between input terminal and case, between input terminal and output terminal, and between output terminal and case: 500VAC (for 1 minute)					
	Isolation Resistance		Between input terminal and output terminal: 500VDC, 50MΩ min					
Standards	Safety Standards		Approved by UL62368-1, CSA62368-1, EN62368-1, UL60950-1, CSA60950-1, EN60950-1. (Expire date of 60950-1: 20/12/2020)					
Mechanical	Weight (typ)	g	4.5					
	Size (W x H x D)	mm	DIP: 22.86 x 8.5 x 16.6 / SMD: 22.86 x 8.8 x 16.6					

Note: "x" in model names is to be replaced by a symbol which represents the terminal configuration (F: DIP/R: SMD) for actual model names.
Note: With nominal input/output voltage, maximum output current, and Ta=25˚C, if not specified separately.
Note: For 12V/±12V models, output voltage can be set to 15V/±15V by connecting the output adjustment terminal TRM to -Vout.
Note: For ± 12V model, output voltage can be set to 24V or 30V single output by making the COM terminal open.

(*1) With nominal input voltage, maximum output current, and Ta=25˚C.
(*2) The maximum output power value is between -40˚C and +50˚C. For use in outside this temperature range, derating is needed.
(*3) In balanced load for dual outputs ("balanced load" means a condition where the +output and -output of load current are equal).
(*4) Output voltage includes input change, load change (balanced load), and temperature change.
(*5) In 50MHz, Ta=25˚C.
(*6) Output current restriction method. Automatically resumes when the causes are removed. Never operate the unit under output-shorted or overload conditions for over 30 seconds.

ITEMS/UNITS \ MODEL			CC3-1203Sx-E	CC3-1205Sx-E	CC3-1212Sx-E		CC3-1212Dx-E	
Input	Nominal Voltage	V	DC12					
	Voltage Range	V	DC9.0-18					
	Efficiency (typ) (*1)	%	74	79	82		81	
	Current (typ) (*1)	A	0.297	0.316	0.305		0.309	
Output	Nominal Voltage	VDC	3.3	5	12	15	± 12	± 15
	Maximum Current	A	0.800	0.600	0.250	0.200	0.125	0.100
	Maximum Power (*2)	W	2.64	3				
	Maximum Line Regulation(Within input voltage range)	mV	20		40		80	
	Maximum Load Regulation (0-100% load) (*3)	mV	40		100		600	
	Temperature Coefficient (Ambient temperature -40℃ to +50℃)		80mV		200mV		300mV	
	Max Power Total Regulation (max)(*4)	%	± 3				± 5	
	Maximum Ripple & Noise (typ/max) (*5)	mVp-p	40/120		30/120			
	Voltage Adjustable Range	VDC	3.15-3.6	4.75-6.0	11.4-15.0		± 11.4- ± 15.0	
Function	Over Current Protection (*6)		Available					
	Over Voltage Protection		Not available					
	Remote ON/OFF Control		Available					
Environment	Operating Ambient Temperature	℃	-40 to +85					
	Storage Ambient Temperature	℃	-40 to +85					
	Operating Ambient Humidity	% RH	5-95 (the conditions of maximum 38˚C in wet bulb temperature and non-condensation should be ensured.)					
	Storage Ambient Humidity	% RH	5-95 (the conditions of maximum 38˚C in wet bulb temperature and non-condensation should be ensured.)					
	Vibration		10-55Hz, 15 minutes sweep and 1.52mm total amplitude, X/Y/Z 3 directions, 2h for each					
	Shock		980m/s² (100G), 6ms, 6 directions, 3 times for each, in non-operation					
Isolation	Withstand Voltage		Between input terminal and case, between input terminal and output terminal, and between output terminal and case: 500VAC (for 1 minute)					
	Isolation Resistance		Between input terminal and output terminal: 500VDC, 50MΩ min					
Standards	Safety Standards		Approved by UL62368-1, CSA62368-1, EN62368-1, UL60950-1, CSA60950-1, EN60950-1. (Expire date of 60950-1: 20/12/2020)					
Mechanical	Weight (typ)	g	4.5					
	Size (W x H x D)	mm	DIP: 22.86 x 8.5 x 16.6 / SMD: 22.86 x 8.8 x 16.6					

Note: "x" in model names is to be replaced by a symbol which represents the terminal configuration (F: DIP/R: SMD) for actual model names.
Note: With nominal input/output voltage, maximum output current, and Ta=25˚C, if not specified separately.
Note: For 12V/±12V models, output voltage can be set to 15V/±15V by connecting the output adjustment terminal TRM to -Vout.
Note: For ± 12V model, output voltage can be set to 24V or 30V single output by making the COM terminal open.

(*1) With nominal input voltage, maximum output current, and Ta=25˚C.
(*2) The maximum output power value is between -40˚C and +50˚C. For use in outside this temperature range, derating is needed.
(*3) In balanced load for dual outputs ("balanced load" means a condition where the +output and -output of load current are equal).
(*4) Output voltage includes input change, load change (balanced load), and temperature change.
(*5) In 50MHz, Ta=25˚C.
(*6) Output current restriction method. Automatically resumes when the causes are removed. Never operate the unit under output-shorted or overload conditions for over 30 seconds.

CC3-E (DIP/SMD)

TDK·Lambda

ITEMS/UNITS	MODEL		CC3-2403Sx-E	CC3-2405Sx-E	CC3-2412Sx-E		CC3-2412Dx-E	
Input	Nominal Voltage	V	DC24					
	Voltage Range	V	DC18-36					
	Efficiency (typ) (*1)	%	73	78	82		81	
	Current (typ) (*1)	A	0.151	0.160	0.152		0.154	
Output	Nominal Voltage	VDC	3.3	5	12	15	± 12	± 15
	Maximum Current	A	0.800	0.600	0.250	0.200	0.125	0.100
	Maximum Power (*2)	W	2.64	3				
	Maximum Line Regulation(Within input voltage range)	mV	20		40		80	
	Maximum Load Regulation (0-100% load) (*3)	mV	40		100		600	
	Temperature Coefficient (Ambient temperature -40℃ to +50℃)		80mV		200mV		300mV	
	Max Power Total Regulation (max)(*4)	%	± 3				± 5	
	Maximum Ripple & Noise (typ/max) (*5)	mVp-p	40/120		30/120			
	Voltage Adjustable Range	VDC	3.15-3.6	4.75-6.0	11.4-15.0		± 11.4- ± 15.0	
Function	Over Current Protection (*6)		Available					
	Over Voltage Protection		Not available					
	Remote ON/OFF Control		Available					
Environment	Operating Ambient Temperature	℃	-40 to +85					
	Storage Ambient Temperature	℃	-40 to +85					
	Operating Ambient Humidity	% RH	5-95 (the conditions of maximum 38˚C in wet bulb temperature and non-condensation should be ensured.)					
	Storage Ambient Humidity	% RH	5-95 (the conditions of maximum 38˚C in wet bulb temperature and non-condensation should be ensured.)					
	Vibration		10-55Hz, 15 minutes sweep and 1.52mm total amplitude, X/Y/Z 3 directions, 2h for each					
	Shock		980m/s² (100G), 6ms, 6 directions, 3 times for each, in non-operation					
Isolation	Withstand Voltage		Between input terminal and case, between input terminal and output terminal, and between output terminal and case: 500VAC (for 1 minute)					
	Isolation Resistance		Between input terminal and output terminal: 500VDC, 50MΩ min					
Standards	Safety Standards		Approved by UL62368-1, CSA62368-1, EN62368-1, UL60950-1, CSA60950-1, EN60950-1. (Expire date of 60950-1: 20/12/2020)					
Mechanical	Weight (typ)	g	4.5					
	Size (W x H x D)	mm	DIP: 22.86 x 8.5 x 16.6 / SMD: 22.86 x 8.8 x 16.6					

Note: "x" in model names is to be replaced by a symbol which represents the terminal configuration (F: DIP/R: SMD) for actual model names.
Note: With nominal input/output voltage, maximum output current, and Ta=25˚C, if not specified separately.
Note: For 12V/±12V models, output voltage can be set to 15V/±15V by connecting the output adjustment terminal TRM to -Vout.
Note: For ± 12V model, output voltage can be set to 24V or 30V single output by making the COM terminal open.

(*1) With nominal input voltage, maximum output current, and Ta=25˚C.
(*2) The maximum output power value is between -40˚C and +50˚C. For use in outside this temperature range, derating is needed.
(*3) In balanced load for dual outputs ("balanced load" means a condition where the +output and -output of load current are equal).
(*4) Output voltage includes input change, load change (balanced load), and temperature change.
(*5) In 50MHz, Ta=25˚C.
(*6) Output current restriction method. Automatically resumes when the causes are removed. Never operate the unit under output-shorted or overload conditions for over 30 seconds.

ITEMS/UNITS	MODEL		CC3-4803Sx-E	CC3-4805Sx-E	CC3-4812Sx-E		CC3-4812Dx-E	
Input	Nominal Voltage	V	DC48					
	Voltage Range	V	DC36-76					
	Efficiency (typ) (*1)	%	73	79	81		80	
	Current (typ) (*1)	A	0.075	0.079	0.077		0.078	
Output	Nominal Voltage	VDC	3.3	5	12	15	± 12	± 15
	Maximum Current	A	0.800	0.600	0.250	0.200	0.125	0.100
	Maximum Power (*2)	W	2.64	3				
	Maximum Line Regulation(Within input voltage range)	mV	20		40		80	
	Maximum Load Regulation (0-100% load) (*3)	mV	40		100		600	
	Temperature Coefficient (Ambient temperature -40℃ to +50℃)		80mV		200mV		300mV	
	Max Power Total Regulation (max)(*4)	%	± 3				± 5	
	Maximum Ripple & Noise (typ/max) (*5)	mVp-p	40/120		30/120			
	Voltage Adjustable Range	VDC	3.15-3.6	4.75-6.0	11.4-15.0		± 11.4- ± 15.0	
Function	Over Current Protection (*6)		Available					
	Over Voltage Protection		Not available					
	Remote ON/OFF Control		Available					
Environment	Operating Ambient Temperature	℃	-40 to +85					
	Storage Ambient Temperature	℃	-40 to +85					
	Operating Ambient Humidity	% RH	5-95 (the conditions of maximum 38˚C in wet bulb temperature and non-condensation should be ensured.)					
	Storage Ambient Humidity	% RH	5-95 (the conditions of maximum 38˚C in wet bulb temperature and non-condensation should be ensured.)					
	Vibration		10-55Hz, 15 minutes sweep and 1.52mm total amplitude, X/Y/Z 3 directions, 2h for each					
	Shock		980m/s² (100G), 6ms, 6 directions, 3 times for each, in non-operation					
Isolation	Withstand Voltage		Between input terminal and case, between input terminal and output terminal, and between output terminal and case: 500VAC (for 1 minute)					
	Isolation Resistance		Between input terminal and output terminal: 500VDC, 50MΩ min					
Standards	Safety Standards		Approved by UL62368-1, CSA62368-1, EN62368-1, UL60950-1, CSA60950-1, EN60950-1. (Expire date of 60950-1: 20/12/2020)					
Mechanical	Weight (typ)	g	4.5					
	Size (W x H x D)	mm	DIP: 22.86 x 8.5 x 16.6 / SMD: 22.86 x 8.8 x 16.6					

Note: "x" in model names is to be replaced by a symbol which represents the terminal configuration (F: DIP/R: SMD) for actual model names.
Note: With nominal input/output voltage, maximum output current, and Ta=25˚C, if not specified separately.
Note: For 12V/±12V models, output voltage can be set to 15V/±15V by connecting the output adjustment terminal TRM to -Vout.
Note: For ± 12V model, output voltage can be set to 24V or 30V single output by making the COM terminal open.

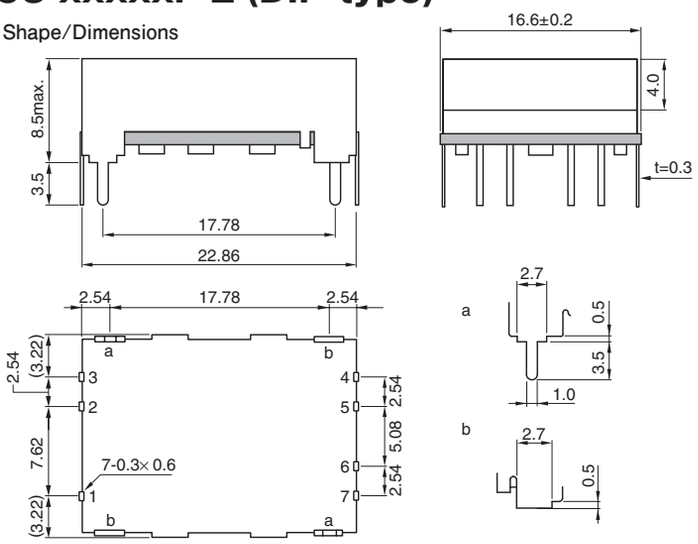
(*1) With nominal input voltage, maximum output current, and Ta=25˚C.
(*2) The maximum output power value is between -40˚C and +50˚C. For use in outside this temperature range, derating is needed.
(*3) In balanced load for dual outputs ("balanced load" means a condition where the +output and -output of load current are equal).
(*4) Output voltage includes input change, load change (balanced load), and temperature change.
(*5) In 50MHz, Ta=25˚C.
(*6) Output current restriction method. Automatically resumes when the causes are removed. Never operate the unit under output-shorted or overload conditions for over 30 seconds.

· All specifications are subject to change without notice.

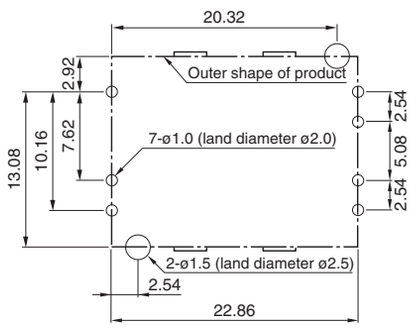
Outline Drawing

CC3-xxxxxF-E (DIP type)

Shape/Dimensions



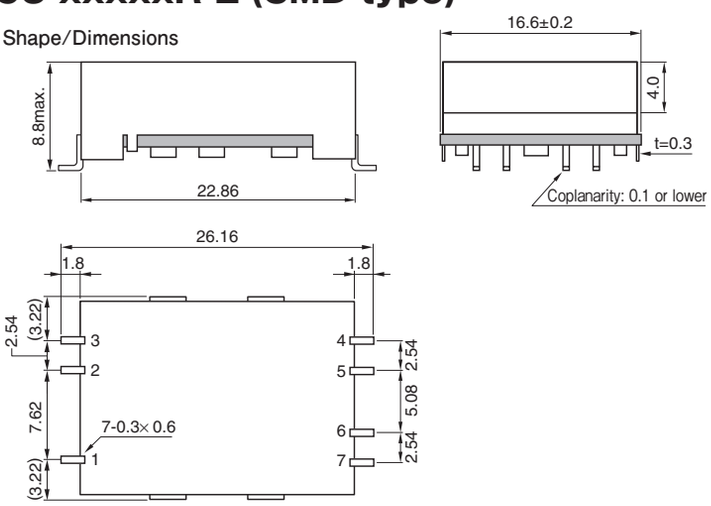
Recommended measurements for mounting board



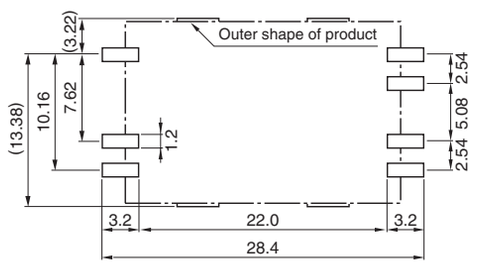
Unit: mm
Allowable tolerance is ±0.5 if not specified separately.

CC3-xxxxxR-E (SMD type)

Shape/Dimensions



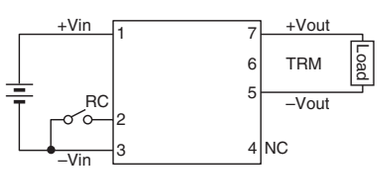
Recommended measurements for mounting board



Unit: mm
Allowable tolerance is ±0.5 if not specified separately.

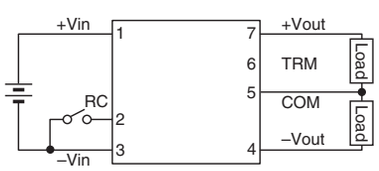
Connection diagram

CC3-xxxxSx-E



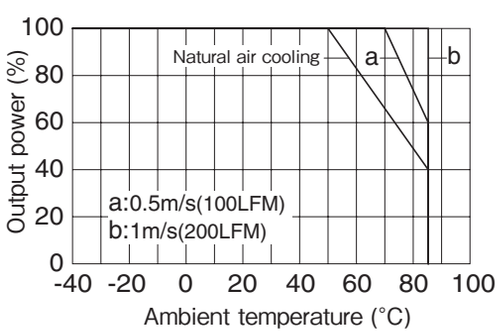
Terminal connections	
No.1	+Vin
No.2	RC
No.3	–Vin
No.4	NC
No.5	–Vout
No.6	TRM
No.7	+Vout

CC3-xxxxDx-E



Terminal connections	
No.1	+Vin
No.2	RC
No.3	–Vin
No.4	–Vout
No.5	Common out
No.6	TRM
No.7	+Vout

Derating Curve



Output power derating by ambient temperature
(common specification)

CC3-E Specifications

ITEMS/UNITS		MODEL	CC3-0503SS-E	CC3-0505SS-E	CC3-0512SS-E		CC3-0512DS-E	
Input	Nominal Voltage	V	DC5.0					
	Voltage Range	V	DC4.5-9.0					
	Efficiency (typ) (*1)	%	73	77	82		81	
	Current (typ) (*1)	A	0.723	0.779	0.732		0.741	
Output	Nominal Voltage	VDC	3.3	5	12	15	± 12	± 15
	Maximum Current	A	0.800	0.600	0.250	0.200	0.125	0.100
	Maximum Power (*2)	W	2.64	3				
	Maximum Line Regulation (Within input voltage range)	mV	20		40		80	
	Maximum Load Regulation (0-100% load) (*3)	mV	40		100		600	
	Temperature Coefficient (Ambient temperature -40℃ to +50℃)		80mV		200mV		300mV	
	Max Power Total Regulation (max)(*4)	%	± 3				± 5	
	Maximum Ripple & Noise (typ/max) (*5)	mVp-p	40/120		30/120			
	Voltage Adjustable Range	VDC	3.15-3.67	4.75-6.0	11.4-15.0		± 11.4- ± 15.0	
Function	Over Current Protection (*6)		Available					
	Over Voltage Protection		Not available					
	Remote ON/OFF Control		Available					
Environment	Operating Ambient Temperature	℃	-40 to +85					
	Storage Ambient Temperature	℃	-40 to +85					
	Operating Ambient Humidity	% RH	5-95 (the conditions of maximum 38℃ in wet bulb temperature and non-condensation should be ensured.)					
	Storage Ambient Humidity	% RH	5-95 (the conditions of maximum 38℃ in wet bulb temperature and non-condensation should be ensured.)					
	Vibration		10-55Hz, 15 minutes sweep and 1.52mm total amplitude, 3 directions, 2h for each					
	Shock		980m/s² (100G), 6ms, 6 directions, 3 times for each, in non-operation					
Isolation	Withstand Voltage		Between input terminal and case, between input terminal and output terminal, and between output terminal and case: 500VAC (for 1 minute)					
	Isolation Resistance		Between input terminal and output terminal: 500VDC, 50MΩ min					
Standards	Safety Standards		Approved by UL62368-1, CSA62368-1, EN62368-1, UL60950-1, CSA60950-1, EN60950-1. (Expire date of 60950-1: 20/12/2020)					
Mechanical	Weight (typ)	g	7					
	Size (W x H x D)	mm	27.8 x 17.9 x 9.2					

Note: With nominal input/output voltage, maximum output current, and Ta=25°C, if not specified separately.
Note: For 12V/±12V models, output voltage can be set to 15V/±15V by connecting the output adjustment terminal TRM to -Vout.
Note: For ± 12V model, output voltage can be set to 24V or 30V single output by making the COM terminal open.

(*1) With nominal input voltage, maximum output current, and Ta=25°C.
(*2) The maximum output power value is between -40°C and +50°C. For use in outside this temperature range, derating is needed.
(*3) In balanced load for dual outputs ("balanced load" means a condition where the +output and -output of load current are equal).
(*4) Output voltage includes input change, load change (balanced load), and temperature change.
(*5) In 50MHz, Ta=25°C.
(*6) Output current restriction method. Automatically resumes when the causes are removed. Never operate the unit under output-shorted or overload conditions for over 30 seconds.

ITEMS/UNITS		MODEL	CC3-1205SS-E	CC3-1212SS-E		CC3-1212DS-E	
Input	Nominal Voltage	V	DC12				
	Voltage Range	V	DC9.0-18				
	Efficiency (typ) (*1)	%	79	82			
	Current (typ) (*1)	A	0.316	0.305			
Output	Nominal Voltage	VDC	5	12	15	± 12	± 15
	Maximum Current	A	0.600	0.250	0.200	0.125	0.100
	Maximum Power (*2)	W	3				
	Maximum Line Regulation (Within input voltage range)	mV	20	40		80	
	Maximum Load Regulation (0-100% load) (*3)	mV	40	100		600	
	Temperature Coefficient (Ambient temperature -40℃ to +50℃)		80mV	200mV		300mV	
	Max Power Total Regulation (max)(*4)	%	± 3			± 5	
	Maximum Ripple & Noise (typ/max) (*5)	mVp-p	40/120	30/120			
	Voltage Adjustable Range	VDC	4.75-6.0	11.4-15.0		± 11.4- ± 15.0	
Function	Over Current Protection (*6)		Available				
	Over Voltage Protection		Not available				
	Remote ON/OFF Control		Available				
Environment	Operating Ambient Temperature	℃	-40 to +85				
	Storage Ambient Temperature	℃	-40 to +85				
	Operating Ambient Humidity	% RH	5-95 (the conditions of maximum 38°C in wet bulb temperature and non-condensation should be ensured.)				
	Storage Ambient Humidity	% RH	5-95 (the conditions of maximum 38°C in wet bulb temperature and non-condensation should be ensured.)				
	Vibration		10-55Hz, 15 minutes sweep and 1.52mm total amplitude, 3 directions, 2h for each				
	Shock		980m/s² (100G), 6ms, 6 directions, 3 times for each, in non-operation				
Isolation	Withstand Voltage		Between input terminal and case, between input terminal and output terminal, and between output terminal and case: 500VAC (for 1 minute)				
	Isolation Resistance		Between input terminal and output terminal: 500VDC, 50MΩ min				
Standards	Safety Standards		Approved by UL62368-1, CSA62368-1, EN62368-1, UL60950-1, CSA60950-1, EN60950-1. (Expire date of 60950-1: 20/12/2020)				
Mechanical	Weight (typ)	g	7				
	Size (W x H x D)	mm	27.8 x 17.9 x 9.2				

Note: With nominal input/output voltage, maximum output current, and Ta=25°C, if not specified separately.
Note: For 12V/±12V models, output voltage can be set to 15V/±15V by connecting the output adjustment terminal TRM to -Vout.
Note: For ± 12V model, output voltage can be set to 24V or 30V single output by making the COM terminal open.

(*1) With nominal input voltage, maximum output current, and Ta=25°C.
(*2) The maximum output power value is between -40°C and +50°C. For use in outside this temperature range, derating is needed.
(*3) In balanced load for dual outputs ("balanced load" means a condition where the +output and -output of load current are equal).
(*4) Output voltage includes input change, load change (balanced load), and temperature change.
(*5) In 50MHz, Ta=25°C.
(*6) Output current restriction method. Automatically resumes when the causes are removed. Never operate the unit under output-shorted or overload conditions for over 30 seconds.

CC3-E (SIP)

ITEMS/UNITS \ MODEL			CC3-2403SS-E	CC3-2405SS-E	CC3-2412SS-E		CC3-2412DS-E	
Input	Nominal Voltage	V	DC24					
	Voltage Range	V	DC18-36					
	Efficiency (typ) (*1)	%	73	78	82		81	
	Current (typ) (*1)	A	0.151	0.160	0.152		0.154	
Output	Nominal Voltage	VDC	3.3	5	12	15	± 12	± 15
	Maximum Current	A	0.800	0.600	0.250	0.200	0.125	0.100
	Maximum Power (*2)	W	2.64	3				
	Maximum Line Regulation (Within input voltage range)	mV	20		40		80	
	Maximum Load Regulation (0-100% load) (*3)	mV	40		100		600	
	Temperature Coefficient (Ambient temperature -40℃ to +50℃)		80mV		200mV		300mV	
	Max Power Total Regulation (max)(*4)	%	± 3				± 5	
	Maximum Ripple & Noise (typ/max) (*5)	mVp-p	40/120		30/120			
	Voltage Adjustable Range	VDC	3.15-3.67	4.75-6.0	11.4-15.0		± 11.4- ± 15.0	
Function	Over Current Protection (*6)		Available					
	Over Voltage Protection		Not available					
	Remote ON/OFF Control		Available					
Environment	Operating Ambient Temperature	℃	-40 to +85					
	Storage Ambient Temperature	℃	-40 to +85					
	Operating Ambient Humidity	% RH	5-95 (the conditions of maximum 38˚C in wet bulb temperature and non-condensation should be ensured.)					
	Storage Ambient Humidity	% RH	5-95 (the conditions of maximum 38˚C in wet bulb temperature and non-condensation should be ensured.)					
	Vibration		10-55Hz, 15 minutes sweep and 1.52mm total amplitude, 3 directions, 2h for each					
	Shock		980m/s² (100G), 6ms, 6 directions, 3 times for each, in non-operation					
Isolation	Withstand Voltage		Between input terminal and case, between input terminal and output terminal, and between output terminal and case: 500VAC (for 1 minute)					
	Isolation Resistance		Between input terminal and output terminal: 500VDC, 50MΩ min					
Standards	Safety Standards		Approved by UL62368-1, CSA62368-1, EN62368-1, UL60950-1, CSA60950-1, EN60950-1. (Expire date of 60950-1: 20/12/2020)					
Mechanical	Weight (typ)	g	7					
	Size (W x H x D)	mm	27.8 x 17.9 x 9.2					

Note: With nominal input/output voltage, maximum output current, and Ta=25˚C, if not specified separately.
Note: For 12V/±12V models, output voltage can be set to 15V/±15V by connecting the output adjustment terminal TRM to -Vout.
Note: For ± 12V model, output voltage can be set to 24V or 30V single output by making the COM terminal open.

(*1) With nominal input voltage, maximum output current, and Ta=25˚C.
(*2) The maximum output power value is between -40˚C and +50˚C. For use in outside this temperature range, derating is needed.
(*3) In balanced load for dual outputs ("balanced load" means a condition where the +output and -output of load current are equal).
(*4) Output voltage includes input change, load change (balanced load), and temperature change.
(*5) In 50MHz, Ta=25˚C.
(*6) Output current restriction method. Automatically resumes when the causes are removed. Never operate the unit under output-shorted or overload conditions for over 30 seconds.

ITEMS/UNITS \ MODEL			CC3-4803SS-E	CC3-4805SS-E	CC3-4812DS-E	
Input	Nominal Voltage	V	DC48			
	Voltage Range	V	DC36-76			
	Efficiency (typ) (*1)	%	73	79	82	
	Current (typ) (*1)	A	0.075	0.079	0.076	
Output	Nominal Voltage	VDC	3.3	5	± 12	± 15
	Maximum Current	A	0.800	0.600	0.125	0.100
	Maximum Power (*2)	W	2.64	3		
	Maximum Line Regulation (Within input voltage range)	mV	20		80	
	Maximum Load Regulation (0-100% load) (*3)	mV	40		600	
	Temperature Coefficient (Ambient temperature -40℃ to +50℃)		80mV		300mV	
	Max Power Total Regulation (max)(*4)	%	± 3		± 5	
	Maximum Ripple & Noise (typ/max) (*5)	mVp-p	40/120		30/120	
	Voltage Adjustable Range	VDC	3.15-3.6	4.75-6.0	± 11.4- ± 15.0	
Function	Over Current Protection (*6)		Available			
	Over Voltage Protection		Not available			
	Remote ON/OFF Control		Available			
Environment	Operating Ambient Temperature	℃	-40 to +85			
	Storage Ambient Temperature	℃	-40 to +85			
	Operating Ambient Humidity	% RH	5-95 (the conditions of maximum 38˚C in wet bulb temperature and non-condensation should be ensured.)			
	Storage Ambient Humidity	% RH	5-95 (the conditions of maximum 38˚C in wet bulb temperature and non-condensation should be ensured.)			
	Vibration		10-55Hz, 15 minutes sweep and 1.52mm total amplitude, 3 directions, 2h for each			
	Shock		980m/s² (100G), 6ms, 6 directions, 3 times for each, in non-operation			
Isolation	Withstand Voltage		Between input terminal and case, between input terminal and output terminal, and between output terminal and case: 500VAC (for 1 minute)			
	Isolation Resistance		Between input terminal and output terminal: 500VDC, 50MΩ min			
Standards	Safety Standards		Approved by UL62368-1, CSA62368-1, EN62368-1, UL60950-1, CSA60950-1, EN60950-1. (Expire date of 60950-1: 20/12/2020)			
Mechanical	Weight (typ)	g	7			
	Size (W x H x D)	mm	27.8 x 17.9 x 9.2			

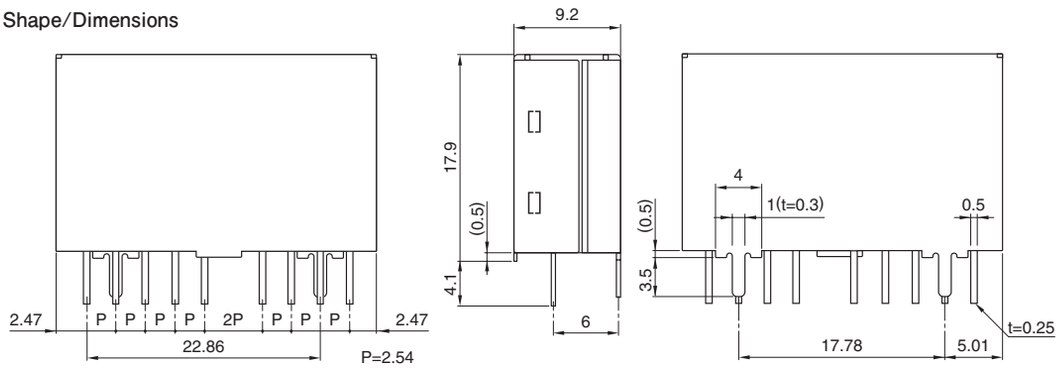
Note: With nominal input/output voltage, maximum output current, and Ta=25˚C, if not specified separately.
Note: For 12V/±12V models, output voltage can be set to 15V/±15V by connecting the output adjustment terminal TRM to -Vout.
Note: For ± 12V model, output voltage can be set to 24V or 30V single output by making the COM terminal open.

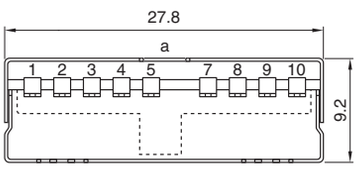
(*1) With nominal input voltage, maximum output current, and Ta=25˚C.
(*2) The maximum output power value is between -40˚C and +50˚C. For use in outside this temperature range, derating is needed.
(*3) In balanced load for dual outputs ("balanced load" means a condition where the +output and -output of load current are equal).
(*4) Output voltage includes input change, load change (balanced load), and temperature change.
(*5) In 50MHz, Ta=25˚C.
(*6) Output current restriction method. Automatically resumes when the causes are removed. Never operate the unit under output-shorted or overload conditions for over 30 seconds.

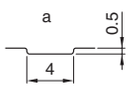
Outline Drawing

CC3-xxxxxS-E (SIP type)

Shape/Dimensions



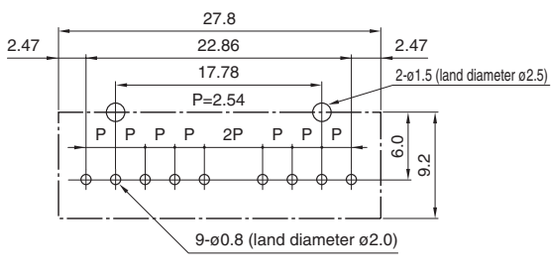




Internal parts mounting space

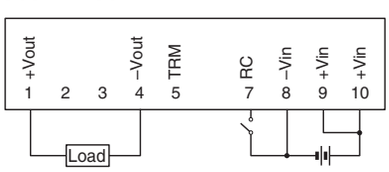
Unit: mm
Allowable tolerance is ±0.5 if not specified separately.

Recommended measurements for mounting board



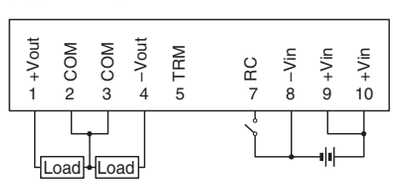
Connection diagram

CC3-xxxxSS-E



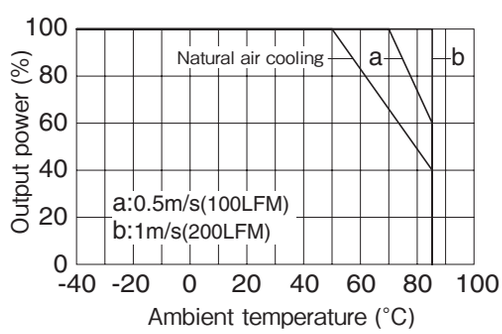
Terminal connections	
No.1	+Vout
No.2	NC
No.3	NC
No.4	–Vout
No.5	TRM
No.6	NC
No.7	RC
No.8	–Vin
No.9	+Vin
No.10	+Vin

CC3-xxxxDS-E



Terminal connections	
No.1	+Vout
No.2	COM
No.3	COM
No.4	–Vout
No.5	TRM
No.6	NC
No.7	RC
No.8	–Vin
No.9	+Vin
No.10	+Vin

Derating Curve



Output power derating by ambient temperature
(common specification)

CC6-E Specifications

ITEMS/UNITS		MODEL	CC6-0503Sx-E	CC6-0505Sx-E	CC6-0512Sx-E		CC6-0512Dx-E	
Input	Nominal Voltage	V	DC5.0					
	Voltage Range	V	DC4.5-9.0					
	Efficiency (typ) (*1)	%	76	79	82			
	Current (typ) (*1)	A	1.042	1.266	1.463			
Output	Nominal Voltage	VDC	3.3	5	12	15	± 12	± 15
	Maximum Current	A	1.200	1.000	0.500	0.400	0.250	0.200
	Maximum Power (*2)	W	3.96	5	6			
	Maximum Line Regulation(Within input voltage range)	mV	20		40		80	
	Maximum Load Regulation (0-100% load) (*3)	mV	40		100		600	
	Temperature Coefficient (Ambient temperature -40℃ to +50℃)		80mV		200mV		300mV	
	Max Power Total Regulation (max)(*4)	%	± 3				± 5	
	Maximum Ripple & Noise (typ/max) (*5)	mVp-p	40/120		30/120			
	Voltage Adjustable Range	VDC	3.15-3.6	4.75-6.0	11.4-15.0		± 11.4- ± 15.0	
Function	Over Current Protection (*6)		Available					
	Over Voltage Protection		Not available					
	Remote ON/OFF Control		Available					
Environment	Operating Ambient Temperature	℃	-40 to +85					
	Storage Ambient Temperature	℃	-40 to +85					
	Operating Ambient Humidity	% RH	5-95 (the conditions of maximum 38℃ in wet bulb temperature and non-condensation should be ensured.)					
	Storage Ambient Humidity	% RH	5-95 (the conditions of maximum 38℃ in wet bulb temperature and non-condensation should be ensured.)					
	Vibration		10-55Hz, 15 minutes sweep and 1.52mm total amplitude, 3 directions, 2h for each					
	Shock		980m/s² (100G), 6ms, 6 directions, 3 times for each, in non-operation					
Isolation	Withstand Voltage		Between input terminal and case, between input terminal and output terminal, and between output terminal and case: 500VAC (for 1 minute)					
	Isolation Resistance		Between input terminal and output terminal: 500VDC, 50MΩ min					
Standards	Safety Standards		Approved by UL62368-1, CSA62368-1, EN62368-1, UL60950-1, CSA60950-1, EN60950-1. (Expire date of 60950-1: 20/12/2020)					
Mechanical	Weight (typ)	g	5.8					
	Size (W x H x D)	mm	DIP: 22.86 x 8.5 x 21.1 / SMD: 22.86 x 8.8 x 21.1					

Note: "x" in model names is to be replaced by a symbol which represents the terminal configuration (F: DIP/R: SMD) for actual model names.
Note: With nominal input/output voltage, maximum output current, and Ta=25˚C, if not specified separately.
Note: For 12V/±12V models, output voltage can be set to 15V/±15V by connecting the output adjustment terminal TRM to -Vout.
Note: For ± 12V model, output voltage can be set to 24V or 30V single output by making the COM terminal open.

(*1) With nominal input voltage, maximum output current, and Ta=25˚C.
(*2) The maximum output power value is between -40˚C and +50˚C. For use in outside this temperature range, derating is needed.
(*3) In balanced load for dual outputs ("balanced load" means a condition where the +output and -output of load current are equal).
(*4) Output voltage includes input change, load change (balanced load), and temperature change.
(*5) In 50MHz, Ta=25˚C.
(*6) Output current restriction method. Automatically resumes when the causes are removed. Never operate the unit under output-shorted or overload conditions for over 30 seconds.

ITEMS/UNITS		MODEL	CC6-1203Sx-E	CC6-1205Sx-E	CC6-1212Sx-E		CC6-1212Dx-E	
Input	Nominal Voltage	V	DC12					
	Voltage Range	V	DC9.0-18					
	Efficiency (typ) (*1)	%	78	82	85			
	Current (typ) (*1)	A	0.423	0.610	0.588			
Output	Nominal Voltage	VDC	3.3	5	12	15	± 12	± 15
	Maximum Current	A	1.200		0.500	0.400	0.250	0.200
	Maximum Power (*2)	W	3.96	6				
	Maximum Line Regulation(Within input voltage range)	mV	20		40		80	
	Maximum Load Regulation (0-100% load) (*3)	mV	40		100		600	
	Temperature Coefficient (Ambient temperature -40℃ to +50℃)		80mV		200mV		300mV	
	Max Power Total Regulation (max)(*4)	%	± 3				± 5	
	Maximum Ripple & Noise (typ/max) (*5)	mVp-p	40/120		30/120			
	Voltage Adjustable Range	VDC	3.15-3.6	4.75-6.0	11.4-15.0		± 11.4- ± 15.0	
Function	Over Current Protection (*6)		Available					
	Over Voltage Protection		Not available					
	Remote ON/OFF Control		Available					
Environment	Operating Ambient Temperature	℃	-40 to +85					
	Storage Ambient Temperature	℃	-40 to +85					
	Operating Ambient Humidity	% RH	5-95 (the conditions of maximum 38˚C in wet bulb temperature and non-condensation should be ensured.)					
	Storage Ambient Humidity	% RH	5-95 (the conditions of maximum 38˚C in wet bulb temperature and non-condensation should be ensured.)					
	Vibration		10-55Hz, 15 minutes sweep and 1.52mm total amplitude, 3 directions, 2h for each					
	Shock		980m/s² (100G), 6ms, 6 directions, 3 times for each, in non-operation					
Isolation	Withstand Voltage		Between input terminal and case, between input terminal and output terminal, and between output terminal and case: 500VAC (for 1 minute)					
	Isolation Resistance		Between input terminal and output terminal: 500VDC, 50MΩ min					
Standards	Safety Standards		Approved by UL62368-1, CSA62368-1, EN62368-1, UL60950-1, CSA60950-1, EN60950-1. (Expire date of 60950-1: 20/12/2020)					
Mechanical	Weight (typ)	g	5.8					
	Size (W x H x D)	mm	DIP: 22.86 x 8.5 x 21.1 / SMD: 22.86 x 8.8 x 21.1					

Note: "x" in model names is to be replaced by a symbol which represents the terminal configuration (F: DIP/R: SMD) for actual model names.
Note: With nominal input/output voltage, maximum output current, and Ta=25˚C, if not specified separately.
Note: For 12V/±12V models, output voltage can be set to 15V/±15V by connecting the output adjustment terminal TRM to -Vout.
Note: For ± 12V model, output voltage can be set to 24V or 30V single output by making the COM terminal open.

(*1) With nominal input voltage, maximum output current, and Ta=25˚C.
(*2) The maximum output power value is between -40˚C and +50˚C. For use in outside this temperature range, derating is needed.
(*3) In balanced load for dual outputs ("balanced load" means a condition where the +output and -output of load current are equal).
(*4) Output voltage includes input change, load change (balanced load), and temperature change.
(*5) In 50MHz, Ta=25˚C.
(*6) Output current restriction method. Automatically resumes when the causes are removed. Never operate the unit under output-shorted or overload conditions for over 30 seconds.

・All specifications are subject to change without notice.

ITEMS/UNITS	MODEL		CC6-2403Sx-E	CC6-2405Sx-E	CC6-2412Sx-E		CC6-2412Dx-E	
Input	Nominal Voltage	V	DC24					
	Voltage Range	V	DC18-36					
	Efficiency (typ) (*1)	%	77	81	87		86	
	Current (typ) (*1)	A	0.214	0.309	0.287		0.291	
Output	Nominal Voltage	VDC	3.3	5	12	15	± 12	± 15
	Maximum Current	A	1.200		0.500	0.400	0.250	0.200
	Maximum Power (*2)	W	3.96	6				
	Maximum Line Regulation(Within input voltage range)	mV	20		40		80	
	Maximum Load Regulation (0-100% load) (*3)	mV	40		100		600	
	Temperature Coefficient (Ambient temperature -40℃ to +50℃)		80mV		200mV		300mV	
	Max Power Total Regulation (max)(*4)	%	± 3				± 5	
	Maximum Ripple & Noise (typ/max) (*5)	mVp-p	40/120		30/120			
	Voltage Adjustable Range	VDC	3.15-3.6	4.75-6.0	11.4-15.0		± 11.4- ± 15.0	
Function	Over Current Protection (*6)		Available					
	Over Voltage Protection		Not available					
	Remote ON/OFF Control		Available					
Environment	Operating Ambient Temperature	℃	-40 to +85					
	Storage Ambient Temperature	℃	-40 to +85					
	Operating Ambient Humidity	% RH	5-95 (the conditions of maximum 38°C in wet bulb temperature and non-condensation should be ensured.)					
	Storage Ambient Humidity	% RH	5-95 (the conditions of maximum 38°C in wet bulb temperature and non-condensation should be ensured.)					
	Vibration		10-55Hz, 15 minutes sweep and 1.52mm total amplitude, 3 directions, 2h for each					
	Shock		980m/s² (100G), 6ms, 6 directions, 3 times for each, in non-operation					
Isolation	Withstand Voltage		Between input terminal and case, between input terminal and output terminal, and between output terminal and case: 500VAC (for 1 minute)					
	Isolation Resistance		Between input terminal and output terminal: 500VDC, 50MΩ min					
Standards	Safety Standards		Approved by UL62368-1, CSA62368-1, EN62368-1, UL60950-1, CSA60950-1, EN60950-1. (Expire date of 60950-1: 20/12/2020)					
Mechanical	Weight (typ)	g	5.8					
	Size (W x H x D)	mm	DIP: 22.86 x 8.5 x 21.1 / SMD: 22.86 x 8.8 x 21.1					

Note: "x" in model names is to be replaced by a symbol which represents the terminal configuration (F: DIP/R: SMD) for actual model names.
Note: With nominal input/output voltage, maximum output current, and Ta=25°C, if not specified separately.
Note: For 12V/±12V models, output voltage can be set to 15V/±15V by connecting the output adjustment terminal TRM to -Vout.
Note: For ± 12V model, output voltage can be set to 24V or 30V single output by making the COM terminal open.

(*1) With nominal input voltage, maximum output current, and Ta=25°C.
(*2) The maximum output power value is between -40°C and +50°C. For use in outside this temperature range, derating is needed.
(*3) In balanced load for dual outputs ("balanced load" means a condition where the +output and -output of load current are equal).
(*4) Output voltage includes input change, load change (balanced load), and temperature change.
(*5) In 50MHz, Ta=25°C.
(*6) Output current restriction method. Automatically resumes when the causes are removed. Never operate the unit under output-shorted or overload conditions for over 30 seconds.

ITEMS/UNITS	MODEL		CC6-4803Sx-E	CC6-4805Sx-E	CC6-4812Sx-E		CC6-4812Dx-E	
Input	Nominal Voltage	V	DC48					
	Voltage Range	V	DC36-76					
	Efficiency (typ) (*1)	%	77	81	86			
	Current (typ) (*1)	A	0.107	0.154	0.145			
Output	Nominal Voltage	VDC	3.3	5	12	15	± 12	± 15
	Maximum Current	A	1.200		0.500	0.400	0.250	0.200
	Maximum Power (*2)	W	3.96	6				
	Maximum Line Regulation(Within input voltage range)	mV	20		40		80	
	Maximum Load Regulation (0-100% load) (*3)	mV	40		100		600	
	Temperature Coefficient (Ambient temperature -40℃ to +50℃)		80mV		200mV		300mV	
	Max Power Total Regulation (max)(*4)	%	± 3				± 5	
	Maximum Ripple & Noise (typ/max) (*5)	mVp-p	40/120		30/120			
	Voltage Adjustable Range	VDC	3.15-3.6	4.75-6.0	11.4-15.0		± 11.4- ± 5.0	
Function	Over Current Protection (*6)		Available					
	Over Voltage Protection		Not available					
	Remote ON/OFF Control		Available					
Environment	Operating Ambient Temperature	℃	-40 to +85					
	Storage Ambient Temperature	℃	-40 to +85					
	Operating Ambient Humidity	% RH	5-95 (the conditions of maximum 38°C in wet bulb temperature and non-condensation should be ensured.)					
	Storage Ambient Humidity	% RH	5-95 (the conditions of maximum 38°C in wet bulb temperature and non-condensation should be ensured.)					
	Vibration		10-55Hz, 15 minutes sweep and 1.52mm total amplitude, 3 directions, 2h for each					
	Shock		980m/s² (100G), 6ms, 6 directions, 3 times for each, in non-operation					
Isolation	Withstand Voltage		Between input terminal and case, between input terminal and output terminal, and between output terminal and case: 500VAC (for 1 minute)					
	Isolation Resistance		Between input terminal and output terminal: 500VDC, 50MΩ min					
Standards	Safety Standards		Approved by UL62368-1, CSA62368-1, EN62368-1, UL60950-1, CSA60950-1, EN60950-1. (Expire date of 60950-1: 20/12/2020)					
Mechanical	Weight (typ)	g	5.8					
	Size (W x H x D)	mm	DIP: 22.86 x 8.5 x 21.1 / SMD: 22.86 x 8.8 x 21.1					

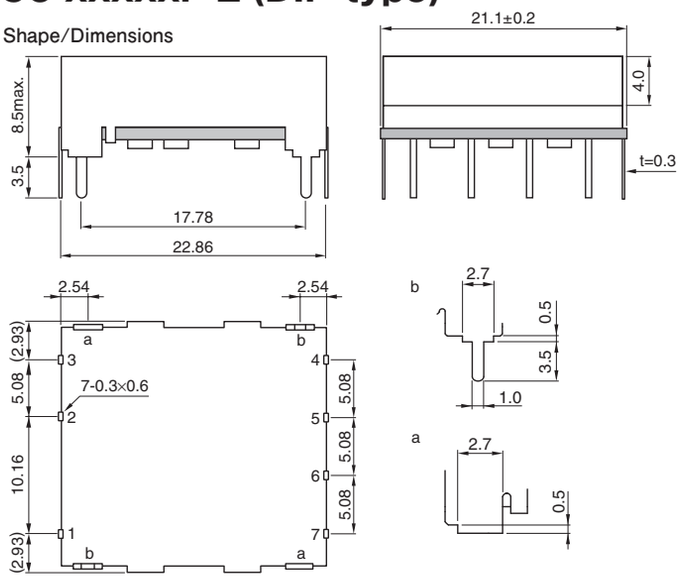
Note: "x" in model names is to be replaced by a symbol which represents the terminal configuration (F: DIP/R: SMD) for actual model names.
Note: With nominal input/output voltage, maximum output current, and Ta=25°C, if not specified separately.
Note: For 12V/±12V models, output voltage can be set to 15V/±15V by connecting the output adjustment terminal TRM to -Vout.
Note: For ± 12V model, output voltage can be set to 24V or 30V single output by making the COM terminal open.

(*1) With nominal input voltage, maximum output current, and Ta=25°C.
(*2) The maximum output power value is between -40°C and +50°C. For use in outside this temperature range, derating is needed.
(*3) In balanced load for dual outputs ("balanced load" means a condition where the +output and -output of load current are equal).
(*4) Output voltage includes input change, load change (balanced load), and temperature change.
(*5) In 50MHz, Ta=25°C.
(*6) Output current restriction method. Automatically resumes when the causes are removed. Never operate the unit under output-shorted or overload conditions for over 30 seconds.

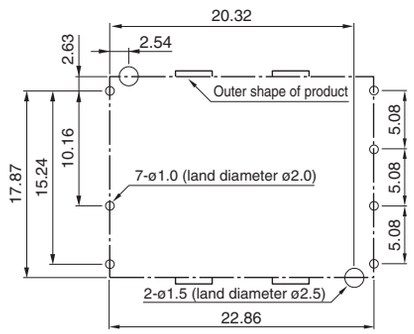
Outline Drawing

CC6-xxxxxF-E (DIP type)

Shape/Dimensions



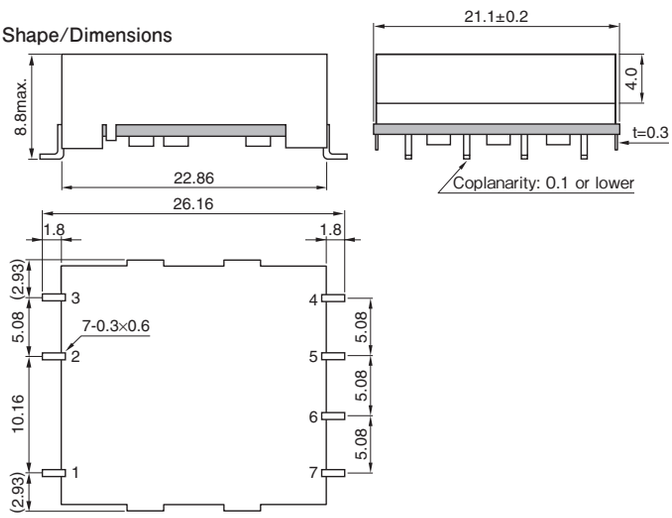
Recommended measurements for mounting board



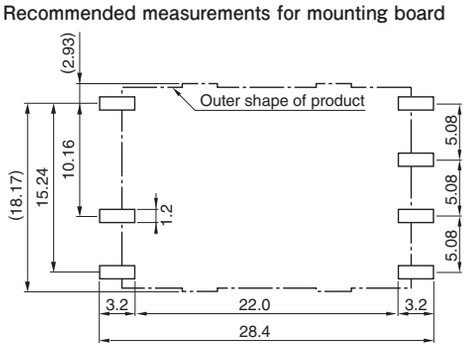
Unit: mm
Allowable tolerance is ±0.5 if not specified separately.

CC6-xxxxxR-E (SMD type)

Shape/Dimensions



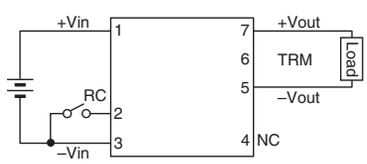
Recommended measurements for mounting board



Unit: mm
Allowable tolerance is ±0.5 if not specified separately.

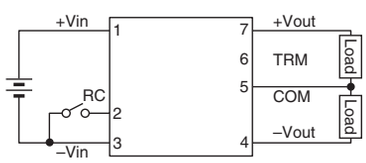
Connection diagram

CC6-xxxxSx-E



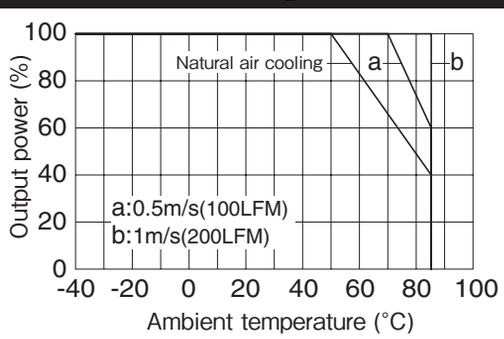
Terminal connections	
No.1	+Vin
No.2	RC
No.3	–Vin
No.4	NC
No.5	–Vout
No.6	TRM
No.7	+Vout

CC6-xxxxDx-E



Terminal connections	
No.1	+Vin
No.2	RC
No.3	–Vin
No.4	–Vout
No.5	Common out
No.6	TRM
No.7	+Vout

Derating Curve



Output power derating by ambient temperature
(common specification)

CC10-E Specifications

ITEMS/UNITS		MODEL	CC10-0503Sx-E	CC10-0505Sx-E	CC10-0512Sx-E		CC10-0512Dx-E	
Input	Nominal Voltage	V	DC5.0					
	Voltage Range	V	DC4.5-9.0					
	Efficiency (typ) (*1)	%	84				83	
	Current (typ) (*1)	A	1.964	2.381	2.286		2.313	
Output	Nominal Voltage	VDC	3.3	5	12	15	± 12	± 15
	Maximum Current	A	2.500	2.000	0.800	0.640	0.400	0.320
	Maximum Power (*2)	W	8.25	10	9.6			
	Maximum Line Regulation(Within input voltage range)	mV	20		40		80	
	Maximum Load Regulation (0-100% load) (*3)	mV	40		100		600	
	Temperature Coefficient (Ambient temperature -40℃ to +50℃)		80mV		200mV		300mV	
	Max Power Total Regulation (max) (*4)	%	± 3				± 5	
	Maximum Ripple & Noise (typ/max) (*5)	mVp-p	40/120		30/120			
	Voltage Adjustable Range	VDC	3.15-3.6	4.75-6.0	11.4-15.0		± 11.4- ± 15.0	
Function	Over Current Protection (*6)		Available					
	Over Voltage Protection		Not available					
	Remote ON/OFF Control		Available					
Environment	Operating Ambient Temperature	℃	-40 to +85					
	Storage Ambient Temperature	℃	-40 to +85					
	Operating Ambient Humidity	% RH	5-95 (the conditions of maximum 38℃ in wet bulb temperature and non-condensation should be ensured.)					
	Storage Ambient Humidity	% RH	5-95 (the conditions of maximum 38℃ in wet bulb temperature and non-condensation should be ensured.)					
	Vibration		10-55Hz, 15 minutes sweep and 1.52mm total amplitude, 3 directions, 2h for each					
	Shock		980m/s² (100G), 6ms, 6 directions, 3 times for each, in non-operation					
Isolation	Withstand Voltage		Between input terminal and case, between input terminal and output terminal, and between output terminal and case: 500VAC (for 1 minute)					
	Isolation Resistance		Between input terminal and output terminal: 500VDC, 50MΩ min					
Standards	Safety Standards		Approved by UL62368-1, CSA62368-1, EN62368-1, UL60950-1, CSA60950-1, EN60950-1. (Expire date of 60950-1: 20/12/2020)					
Mechanical	Weight (typ)	g	10					
	Size (W x H x D)	mm	DIP: 35.56 x 8.5 x 22.6 / SMD: 35.56 x 8.8 x 22.6					

Note: "x" in model names is to be replaced by a symbol which represents the terminal configuration (F: DIP/R: SMD) for actual model names.
Note: With nominal input/output voltage, maximum output current, and Ta=25°C, if not specified separately.
Note: For 12V/±12V models, output voltage can be set to 15V/±15V by connecting the output adjustment terminal TRM to -Vout.
Note: For ± 12V model, output voltage can be set to 24V or 30V single output by making the COM terminal open.

(*1) With nominal input voltage, maximum output current, and Ta=25°C.
(*2) The maximum output power value is between -40°C and +50°C. For use in outside this temperature range, derating is needed.
(*3) In balanced load for dual outputs ("balanced load" means a condition where the +output and -output of load current are equal).
(*4) Output voltage includes input change, load change (balanced load), and temperature change.
(*5) In 50MHz, Ta=25°C.
(*6) Output current restriction method. Automatically resumes when the causes are removed. Never operate the unit under output-shorted or overload conditions for over 30 seconds.

ITEMS/UNITS		MODEL	CC10-1203Sx-E	CC10-1205Sx-E	CC10-1212Sx-E		CC10-1212Dx-E	
Input	Nominal Voltage	V	DC12					
	Voltage Range	V	DC9.0-18					
	Efficiency (typ) (*1)	%	84	86	88		86	
	Current (typ) (*1)	A	0.318	0.969	1.136		1.047	
Output	Nominal Voltage	VDC	3.3	5	12	15	± 12	± 15
	Maximum Current	A	2.500	2.000	1000	800	450	360
	Maximum Power (*2)	W	8.25	10	12		10.8	
	Maximum Line Regulation(Within input voltage range)	mV	20		40		80	
	Maximum Load Regulation (0-100% load) (*3)	mV	40		100		600	
	Temperature Coefficient (Ambient temperature -40℃ to +50℃)		80mV		200mV		300mV	
	Max Power Total Regulation (max) (*4)	%	± 3				± 5	
	Maximum Ripple & Noise (typ/max) (*5)	mVp-p	40/120		30/120			
	Voltage Adjustable Range	VDC	3.15-3.6	4.75-6.0	11.4-15.0		± 11.4- ± 15.0	
Function	Over Current Protection (*6)		Available					
	Over Voltage Protection		Not available					
	Remote ON/OFF Control		Available					
Environment	Operating Ambient Temperature	℃	-40 to +85					
	Storage Ambient Temperature	℃	-40 to +85					
	Operating Ambient Humidity	% RH	5-95 (the conditions of maximum 38°C in wet bulb temperature and non-condensation should be ensured.)					
	Storage Ambient Humidity	% RH	5-95 (the conditions of maximum 38°C in wet bulb temperature and non-condensation should be ensured.)					
	Vibration		10-55Hz, 15 minutes sweep and 1.52mm total amplitude, 3 directions, 2h for each					
	Shock		980m/s² (100G), 6ms, 6 directions, 3 times for each, in non-operation					
Isolation	Withstand Voltage		Between input terminal and case, between input terminal and output terminal, and between output terminal and case: 500VAC (for 1 minute)					
	Isolation Resistance		Between input terminal and output terminal: 500VDC, 50MΩ min					
Standards	Safety Standards		Approved by UL62368-1, CSA62368-1, EN62368-1, UL60950-1, CSA60950-1, EN60950-1. (Expire date of 60950-1: 20/12/2020)					
Mechanical	Weight (typ)	g	10					
	Size (W x H x D)	mm	DIP: 35.56 x 8.5 x 22.6 / SMD: 35.56 x 8.8 x 22.6					

Note: "x" in model names is to be replaced by a symbol which represents the terminal configuration (F: DIP/R: SMD) for actual model names.
Note: With nominal input/output voltage, maximum output current, and Ta=25°C, if not specified separately.
Note: For 12V/±12V models, output voltage can be set to 15V/±15V by connecting the output adjustment terminal TRM to -Vout.
Note: For ± 12V model, output voltage can be set to 24V or 30V single output by making the COM terminal open.

(*1) With nominal input voltage, maximum output current, and Ta=25°C.
(*2) The maximum output power value is between -40°C and +50°C. For use in outside this temperature range, derating is needed.
(*3) In balanced load for dual outputs ("balanced load" means a condition where the +output and -output of load current are equal).
(*4) Output voltage includes input change, load change (balanced load), and temperature change.
(*5) In 50MHz, Ta=25°C.
(*6) Output current restriction method. Automatically resumes when the causes are removed. Never operate the unit under output-shorted or overload conditions for over 30 seconds.

ITEMS/UNITS	MODEL		CC10-2403Sx-E	CC10-2405Sx-E	CC10-2412Sx-E		CC10-2412Dx-E	
Input	Nominal Voltage	V	DC24					
	Voltage Range	V	DC18-36					
	Efficiency (typ) (*1)	%	84	86	87		86	
	Current (typ) (*1)	A	0.409	0.484	0.575		0.523	
Output	Nominal Voltage	VDC	3.3	5	12	15	± 12	± 15
	Maximum Current	A	2.500	2.000	1.000	0.800	0.450	0.360
	Maximum Power (*2)	W	8.25	10	12		10.8	
	Maximum Line Regulation(Within input voltage range)	mV	20		40		80	
	Maximum Load Regulation (0-100% load) (*3)	mV	40		100		600	
	Temperature Coefficient (Ambient temperature -40℃ to +50℃)		80mV		200mV		300mV	
	Max Power Total Regulation (max) (*4)	%	± 3				± 5	
	Maximum Ripple & Noise (typ/max) (*5)	mVp-p	40/120		30/120			
	Voltage Adjustable Range	VDC	3.15-3.6	4.75-6.0	11.4-15.0		± 11.4- ± 15.0	
Function	Over Current Protection (*6)		Available					
	Over Voltage Protection		Not available					
	Remote ON/OFF Control		Available					
Environment	Operating Ambient Temperature	℃	-40 to +85					
	Storage Ambient Temperature	℃	-40 to +85					
	Operating Ambient Humidity	% RH	5-95 (the conditions of maximum 38°C in wet bulb temperature and non-condensation should be ensured.)					
	Storage Ambient Humidity	% RH	5-95 (the conditions of maximum 38°C in wet bulb temperature and non-condensation should be ensured.)					
	Vibration		10-55Hz, 15 minutes sweep and 1.52mm total amplitude, 3 directions, 2h for each					
	Shock		980m/s² (100G), 6ms, 6 directions, 3 times for each, in non-operation					
Isolation	Withstand Voltage		Between input terminal and case, between input terminal and output terminal, and between output terminal and case: 500VAC (for 1 minute)					
	Isolation Resistance		Between input terminal and output terminal: 500VDC, 50MΩ min					
Standards	Safety Standards		Approved by UL62368-1, CSA62368-1, EN62368-1, UL60950-1, CSA60950-1, EN60950-1. (Expire date of 60950-1: 20/12/2020)					
Mechanical	Weight (typ)	g	10					
	Size (W x H x D)	mm	DIP: 35.56 x 8.5 x 22.6 / SMD: 35.56 x 8.8 x 22.6					

Note: "x" in model names is to be replaced by a symbol which represents the terminal configuration (F: DIP/R: SMD) for actual model names.
Note: With nominal input/output voltage, maximum output current, and Ta=25°C, if not specified separately.
Note: For 12V/±12V models, output voltage can be set to 15V/±15V by connecting the output adjustment terminal TRM to -Vout.
Note: For ± 12V model, output voltage can be set to 24V or 30V single output by making the COM terminal open.

(*1) With nominal input voltage, maximum output current, and Ta=25°C.
(*2) The maximum output power value is between -40°C and +50°C. For use in outside this temperature range, derating is needed.
(*3) In balanced load for dual outputs ("balanced load" means a condition where the +output and -output of load current are equal).
(*4) Output voltage includes input change, load change (balanced load), and temperature change.
(*5) In 50MHz, Ta=25°C.
(*6) Output current restriction method. Automatically resumes when the causes are removed. Never operate the unit under output-shorted or overload conditions for over 30 seconds.

ITEMS/UNITS	MODEL		CC10-4803Sx-E	CC10-4805Sx-E	CC10-4812Sx-E		CC10-4812Dx-E	
Input	Nominal Voltage	V	DC48					
	Voltage Range	V	DC36-76					
	Efficiency (typ) (*1)	%	84	86	88		86	
	Current (typ) (*1)	A	0.205	0.242	0.284		0.262	
Output	Nominal Voltage	VDC	3.3	5	12	15	± 12	± 15
	Maximum Current	A	2.500	2.000	1.000	0.800	0.450	0.360
	Maximum Power (*2)	W	8.25	10	12		10.8	
	Maximum Line Regulation(Within input voltage range)	mV	20		40		80	
	Maximum Load Regulation (0-100% load) (*3)	mV	40		100		600	
	Temperature Coefficient (Ambient temperature -40℃ to +50℃)		80mV		200mV		300mV	
	Max Power Total Regulation (max) (*4)	%	± 3				± 5	
	Maximum Ripple & Noise (typ/max) (*5)	mVp-p	40/120		30/120			
	Voltage Adjustable Range	VDC	3.15-3.6	4.75-6.0	11.4-15.0		± 11.4- ± 15.0	
Function	Over Current Protection (*6)		Available					
	Over Voltage Protection		Not available					
	Remote ON/OFF Control		Available					
Environment	Operating Ambient Temperature	℃	-40 to +85					
	Storage Ambient Temperature	℃	-40 to +85					
	Operating Ambient Humidity	% RH	5-95 (the conditions of maximum 38°C in wet bulb temperature and non-condensation should be ensured.)					
	Storage Ambient Humidity	% RH	5-95 (the conditions of maximum 38°C in wet bulb temperature and non-condensation should be ensured.)					
	Vibration		10-55Hz, 15 minutes sweep and 1.52mm total amplitude, 3 directions, 2h for each					
	Shock		980m/s² (100G), 6ms, 6 directions, 3 times for each, in non-operation					
Isolation	Withstand Voltage		Between input terminal and case, between input terminal and output terminal, and between output terminal and case: 500VAC (for 1 minute)					
	Isolation Resistance		Between input terminal and output terminal: 500VDC, 50MΩ min					
Standards	Safety Standards		Approved by UL62368-1, CSA62368-1, EN62368-1, UL60950-1, CSA60950-1, EN60950-1. (Expire date of 60950-1: 20/12/2020)					
Mechanical	Weight (typ)	g	10					
	Size (W x H x D)	mm	DIP: 35.56 x 8.5 x 22.6 / SMD: 35.56 x 8.8 x 22.6					

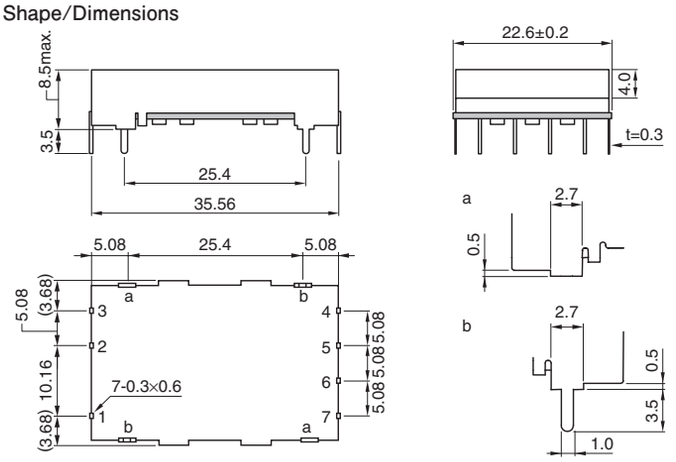
Note: "x" in model names is to be replaced by a symbol which represents the terminal configuration (F: DIP/R: SMD) for actual model names.
Note: With nominal input/output voltage, maximum output current, and Ta=25°C, if not specified separately.
Note: For 12V/±12V models, output voltage can be set to 15V/±15V by connecting the output adjustment terminal TRM to -Vout.
Note: For ± 12V model, output voltage can be set to 24V or 30V single output by making the COM terminal open.

(*1) With nominal input voltage, maximum output current, and Ta=25°C.
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(*3) In balanced load for dual outputs ("balanced load" means a condition where the +output and -output of load current are equal).
(*4) Output voltage includes input change, load change (balanced load), and temperature change.
(*5) In 50MHz, Ta=25°C.
(*6) Output current restriction method. Automatically resumes when the causes are removed. Never operate the unit under output-shorted or overload conditions for over 30 seconds.

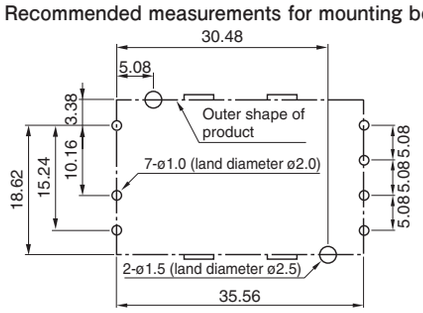
Outline Drawing

CC10-xxxxxF-E (DIP type)

Shape/Dimensions



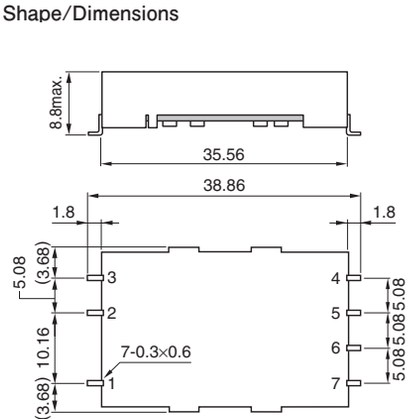
Recommended measurements for mounting board



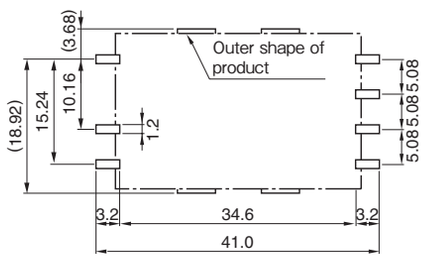
Unit: mm
Allowable tolerance is ±0.5 if not specified separately.

CC10-xxxxxR-E (SMD type)

Shape/Dimensions



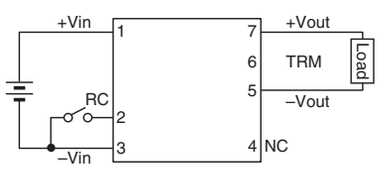
Recommended measurements for mounting board



Unit: mm
Allowable tolerance is ±0.5 if not specified separately.

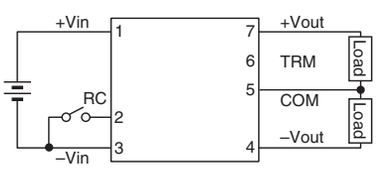
Connection diagram

CC10-xxxxSx-E



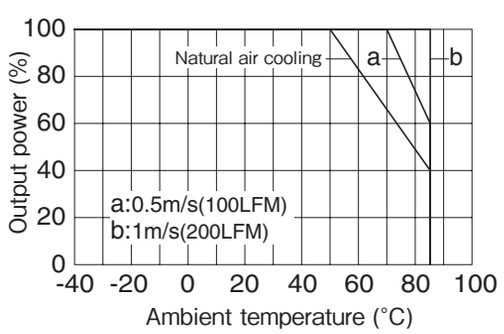
Terminal connections	
No.1	+Vin
No.2	RC
No.3	–Vin
No.4	NC
No.5	–Vout
No.6	TRM
No.7	+Vout

CC10-xxxxDx-E



Terminal connections	
No.1	+Vin
No.2	RC
No.3	–Vin
No.4	–Vout
No.5	Common out
No.6	TRM
No.7	+Vout

Derating Curve



Output power derating by ambient temperature
(common specification)