CMD50P06/CMU50P06

P-Channel 60-V (D-S) MOSFET

General Description

These P-Channel enhancement mode power field effect transistors use advanced trench technology and design to provide excellent RDS(ON) . this device ideal for use in power management circuitry. Typical applications are PWM DC-DC converters, power management in portable and battery-powered products such as computers,printers,battery charger, telecommunication power system,and telephones power system.

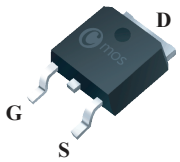
Product Summary

BVDSS	RDSON	ID
-60V	25mΩ	-50A

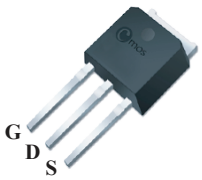
Applications

- DC-DC Converters
- Power Management in Note book
- Load Switch

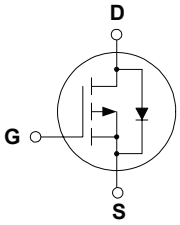
TO-252/251 Pin Configuration



TO-252
(CMD50P06)



TO-251
(CMU50P06)



Features

- Fast switching speed
- Lower On-resistance
- 100% EAS Guaranteed
- Simple Drive Requirement

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	-60	V
V_{GS}	Gate-Source Voltage	±20	V
I_D@T_C=25℃	Continuous Drain Current	-50	A
I_{DM}	Pulsed Drain Current	-150	A
I_{AS}	Single Pulse Avalanche Current	-50	A
EAS	Single Pulse Avalanche Energy [3]	101	mJ
P_D@T_C=25℃	Total Power Dissipation	85	W
T_{STG}	Storage Temperature Range	-55 to 150	℃
T_J	Operating Junction Temperature Range	-55 to 150	℃

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Junction-to-Ambient [1]	---	50	℃/W
$R_{\theta JC}$	Junction-to-Case (Drain)	---	1.1	℃/W

P-Channel 60-V (D-S) MOSFET

Electrical Characteristics (T_J=25℃ , unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V , I_D=-250uA	-60	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance[2]	V_{GS}=-10V, I_D=-20A	---	---	25	mΩ
		V_{GS}=-4.5V, I_D=-15A	---	---	40	
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D =-250uA	-1	---	-3	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}=-60V, V_{GS}=0V , T_J=25℃	---	---	-1	uA
		V_{DS}=-60V, V_{GS}=0V , T_J=125℃	---	---	-50	
I_{GSS}	Gate-Source Leakage Current	V_{GS} =±20V , V_{DS}=0V	---	---	±100	nA
gfs	Forward Transconductance[2]	V_{DS}=-10V , I_D=-45A	---	35	---	S
Q_g	Total Gate Charge	V_{DS}=-30V , I_D=-50A V_{GS}=-10V	---	100	---	nC
Q_{gs}	Gate-Source Charge		---	15	---	
Q_{gd}	Gate-Drain Charge		---	24	---	
$T_{d(on)}$	Turn-On Delay Time	V_{DD}=-30V, V_{GS}=-10V, R_L=0.6Ω I_D=-50A , R_G=6Ω	---	20	---	ns
T_r	Rise Time		---	100	---	
$T_{d(off)}$	Turn-Off Delay Time		---	200	---	
T_f	Fall Time		---	200	---	
C_{iss}	Input Capacitance	V_{DS}=-25V, V_{GS}=0V , f=1MHz	---	3850	---	pF
C_{oss}	Output Capacitance		---	400	---	
C_{rss}	Reverse Transfer Capacitance		---	200	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	V_G=V_D=0V , Force Current	---	---	-50	A
I_{SM}	Pulsed Source Current		---	---	-150	A
V_{SD}	Diode Forward Voltage[2]	V_{GS}=0V , I_F=-25A	---	---	-1.2	V

Notes

1. When mounted on 1 " square PCB (FR-4 material).
2. Pulse test; pulse width≤ 300μs, duty cycle≤ 2%.
3.The test condition is V_{DD}=-30V,L=0.1mH,I_D=-45A.

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