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TPMG85XP
P-Channel 20V (D-S) MOSFET

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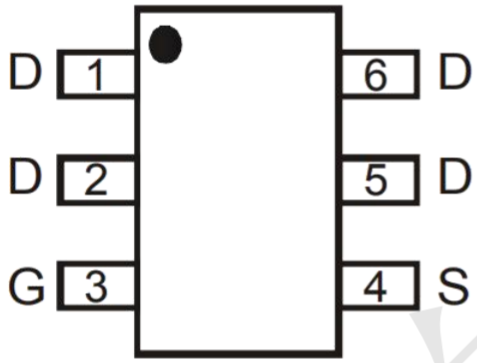
Product Summary

- V_{DS} -20 V
- I_{DS} (at V_{GS}=-4.5V) -3 A
- $R_{DS(ON)}$ (at V_{GS}=-4.5V) ≤95mΩ

Application

- Interfacing Switching
- Portable equipment and battery
- Load Switch

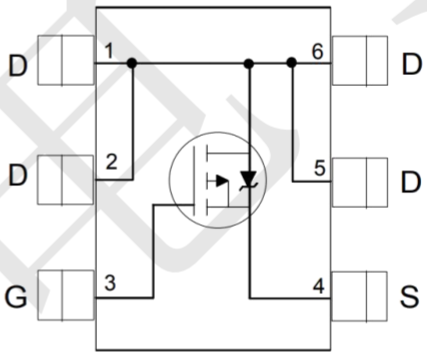
Package and Pin Configuration



Top View

SOT363

Circuit diagram



Top View

Absolute Maximum Ratings (T_A=25℃unless otherwise noted)

PARAMETER	SYMBOL	LIMIT	UNIT
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	±10	V
Continuous Drain Current	I_D	-3	A
Pulsed Drain Current (t = 100 μs)	I_{DM}	-7	A
Maximum Power Dissipation TA=25℃	P_D	1.5	W
Operating Junction Temperature Range	T_J	-55 to +150	℃
Storage Temperature Range	T_{stg}	-55 to +150	℃

Thermal Characteristic

PARAMETER		Symbol	Value	Unit
Thermal Resistance from Junction to Ambient(t≤5s)	PCB Mount (Note)	$R_{\theta JA}$	80	°C/W

Note : When mounted on 1" square PCB (FR4 material).

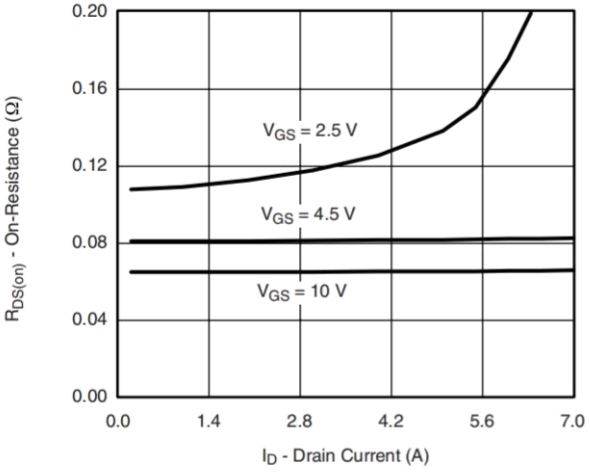
Electrical Characteristics (T_A=25℃unless otherwise noted)

PARAMETER	CONDITIONS	SYMBOL	MIN	TYP	MAX	UNIT
Static						
Drain-Source Breakdown Voltage	V_{GS}=0V, I_D= -250μA	BV_{DSS}	-20	--	--	V
Gate-Source Threshold Voltage	V_{DS}=V_{GS} , I_D= -250μA	$V_{GS(th)}$	-0.4	-0.6	-1.0	V
Gate-Source Leakage	V_{DS}=0V, V_{GS}= ±10V	I_{GSS}	--	--	±100	nA
Zero Gate Voltage Drain Current	V_{DS}= -20V, V_{GS}=0V	I_{DSS}	--	-0.1	-1	μA
	V_{DS}= -20V, T_J=55°C		--	--	-10	μA
Drain-Source On-State Resistance (Note 1)	V_{GS}= -4.5V, I_D= -3A	R_{DS}(on)	--	80	95	mΩ
	V_{GS}= -2.5V, I_D= -2A		--	100	120	
Forward Transconductance (Note 2)	V_{DS}= -5V, I_D= -2A	g_{fs}	--	10	--	S
Dynamic (Note 2)						
Total Gate Charge (Note 3)	V_{DS} = -10V, I_D = - 2.5A, V_{GS} = -4.5V	Q_g	--	5.5	--	nC
Gate-Source Charge (Note 3)		Q_{gs}	--	0.8	--	
Gate-Drain Charge (Note 3)		Q_{gd}	--	1.8	--	
Input Capacitance	V_{DS} = -10V, V_{GS} = 0V, F= 1.0MHz	C_{iss}	--	470	--	pF
Output Capacitance		C_{oss}	--	105	--	
Reverse Transfer Capacitance		C_{rss}	--	80	--	
Switching						
Turn-On Delay Time (Note 3)	V_{DS} = -10V, I_D= - 2A, V_{GS} = -10V, R_G = 6Ω	$t_{d(on)}$	--	5	--	nS
Rise Time (Note 3)		t_r	--	20	--	
Turn-Off Delay Time (Note 3)		$t_{d(off)}$	--	22	--	
Fall Time (Note 3)		t_f	--	10	--	
Source-Drain Diode Ratings and Characteristics (Note 2)						
Forward Voltage	V_{GS} = 0V, I_F = -1A	V_{SD}	--	-0.8	-1.1	V
Continuous Source Current	Integral reverse diode in the MOSFET	I_S	--	--	-3	A
Pulsed Current (Note 1)		I_{SM}	--	--	-7	A

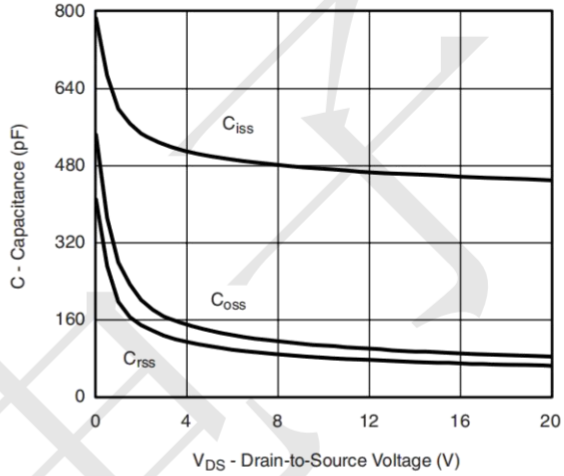
Notes:

1. Pulse test; pulse width ≤ 300 μS, duty cycle ≤ 2%.
2. Guaranteed by design, not subject to production testing.
3. Independent of operating temperature

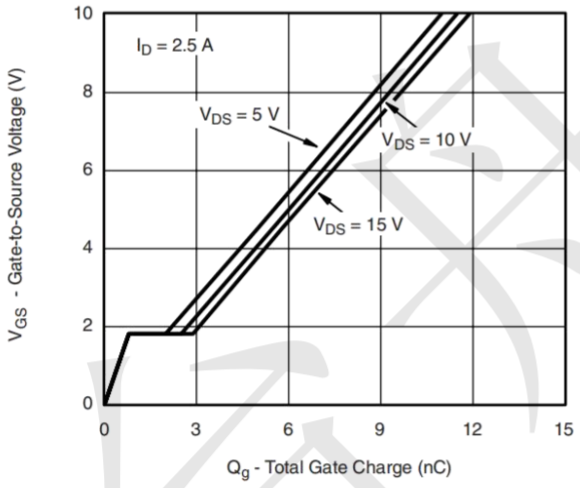
TYPICAL CHARACTERISTICS



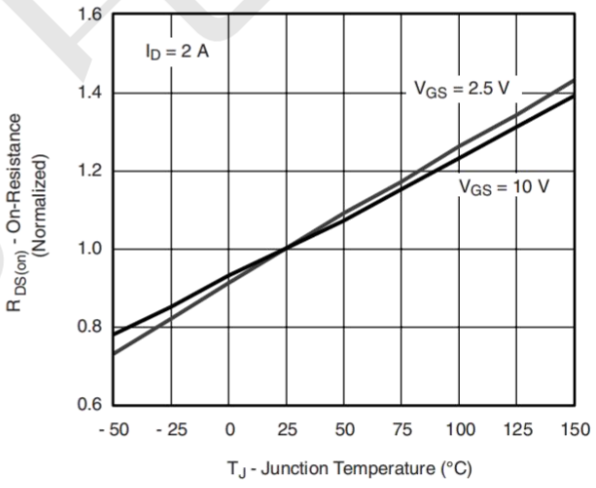
On-Resistance vs. Drain Current and Gate Voltage



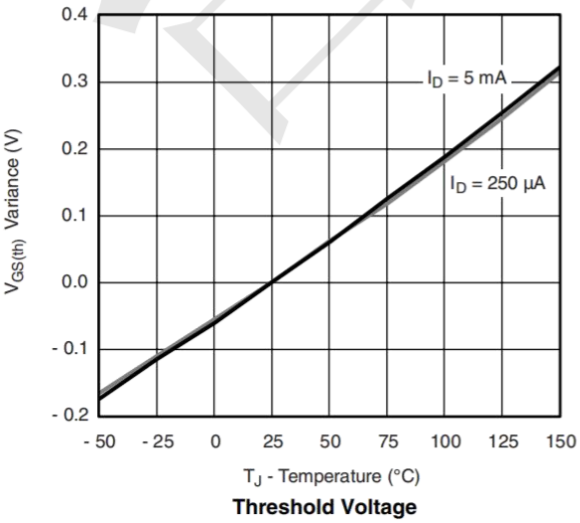
Capacitance



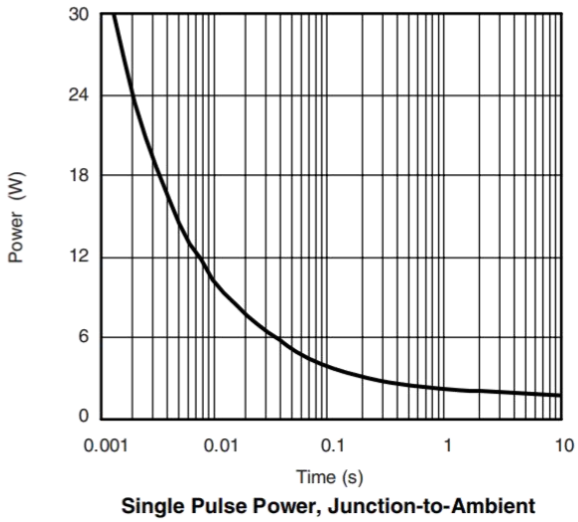
Gate Charge



On-Resistance vs. Junction Temperature



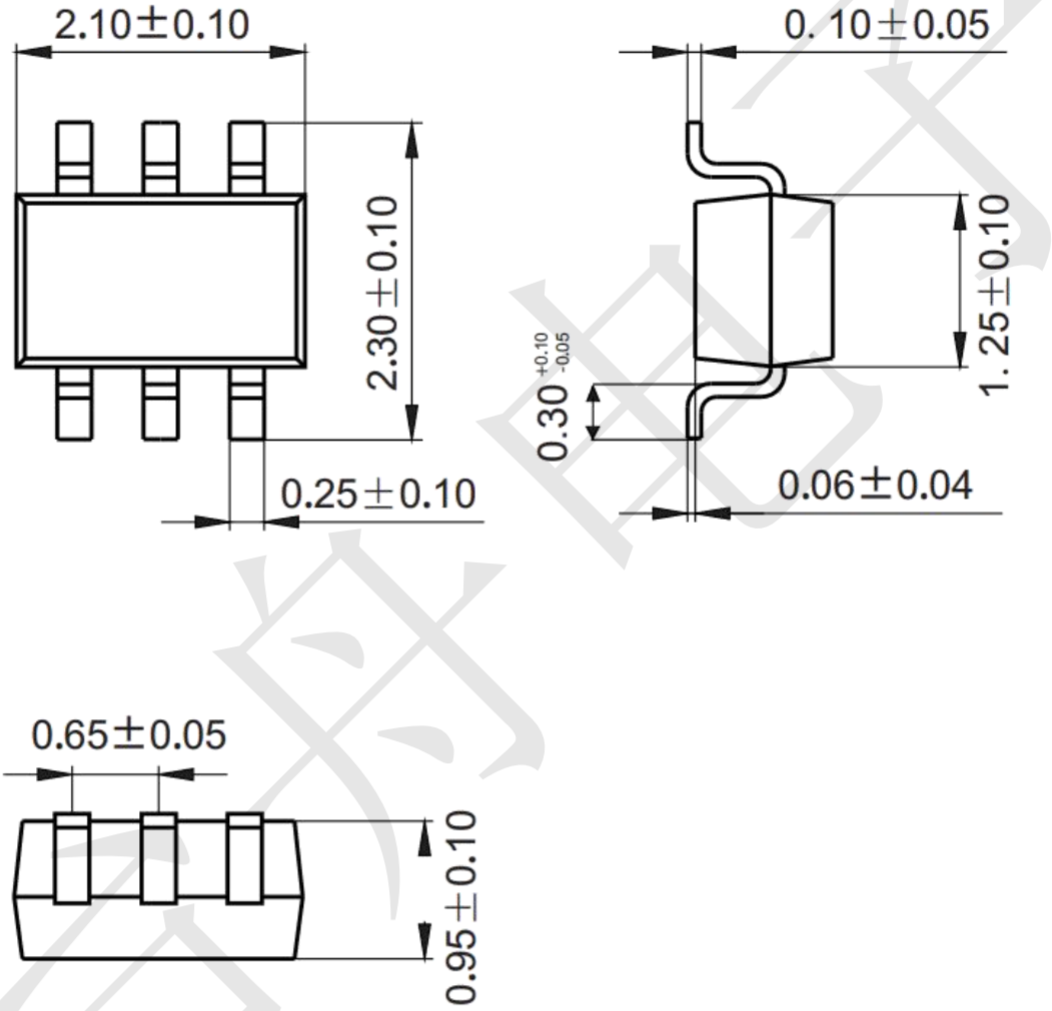
Threshold Voltage



Single Pulse Power, Junction-to-Ambient

Package information (Unit: mm)

SOT-363



Mounting Pad Layout (unit: mm)

