

Features

- Trench Power MV MOSFET Technology
- Excellent Package for Heat Dissipation
- High Density Cell Design for Low $R_{DS(ON)}$
- Epoxy Meets UL 94 V-0 Flammability Rating
- Moisture Sensitivity Level 1
- Halogen Free. "Green" Device ⁽¹⁾
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

Maximum Ratings

- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 73.5°C/W Junction to Ambient ⁽²⁾

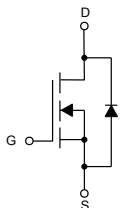
Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	$T_A=25^\circ\text{C}$	3
		$T_A=70^\circ\text{C}$	2.4
Pulsed Drain Current ⁽³⁾	I_{DM}	12	A
Total Power Dissipation	P_D	1.7	W

Note: 1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

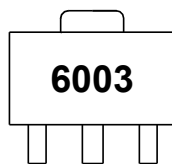
2. Device Mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch.

3. Pulse Test: Pulse Width ≤ 300µs, Duty Cycle ≤ 2%.

Internal Structure and Marking Code

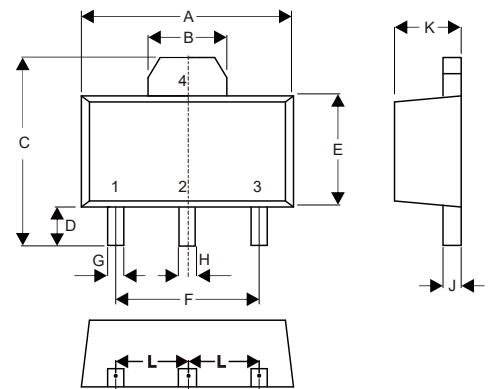


- 1. Gate
- 2,4. Drain
- 3. Source



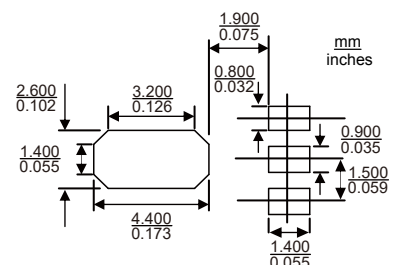
N-CHANNEL MOSFET

SOT-89



DIM	DIMENSIONS				NOTE
	INCHES		MM		
	MIN	MAX	MIN	MAX	
A	0.169	0.185	4.30	4.70	
B	0.061		1.55		TYP.
C	0.154	0.171	3.91	4.35	
D	0.031	0.047	0.80	1.20	
E	0.089	0.104	2.25	2.65	
F	0.118		3.00		TYP.
G	0.013	0.020	0.33	0.52	
H	0.015	0.021	0.38	0.53	
J	0.014	0.017	0.35	0.44	
K	0.055	0.063	1.40	1.60	
L	0.059		1.50		TYP.

Suggested Solder Pad Layout



Electrical Characteristics @ 25°C (Unless Otherwise Specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	60			V
Gate-Source Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 20V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=60V, V_{GS}=0V$			1	μA
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.65	0.95	1.55	V
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=3A$		86	100	m Ω
		$V_{GS}=4.5V, I_D=2A$		90	120	m Ω
Diode Characteristics						
Continuous Body Diode Current	I_S				3	A
Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=3A$		0.8	1.2	V
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS}=30V, V_{GS}=0V, f=1MHz$		340		pF
Output Capacitance	C_{oss}			95		
Reverse Transfer Capacitance	C_{rss}			17		
Total Gate Charge	Q_g	$V_{DS}=30V, V_{GS}=10V, I_D=3A$		5.2		nC
Gate-Source Charge	Q_{gs}			1.3		
Gate-Drain Charge	Q_{gd}			1.7		
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=10V, V_{DD}=30V, I_D=1.5A, R_L=1\Omega, R_{GEN}=3\Omega$		13		ns
Turn-On Rise Time	t_r			51		
Turn-Off Delay Time	$t_{d(off)}$			19		
Turn-Off Fall Time	t_f			12		

Curve Characteristics

Fig. 1 - Typical Output Characteristics

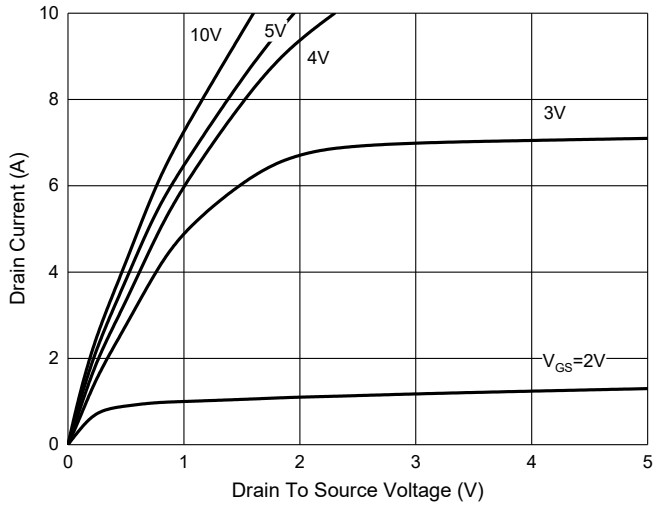


Fig. 2 - Transfer Characteristics

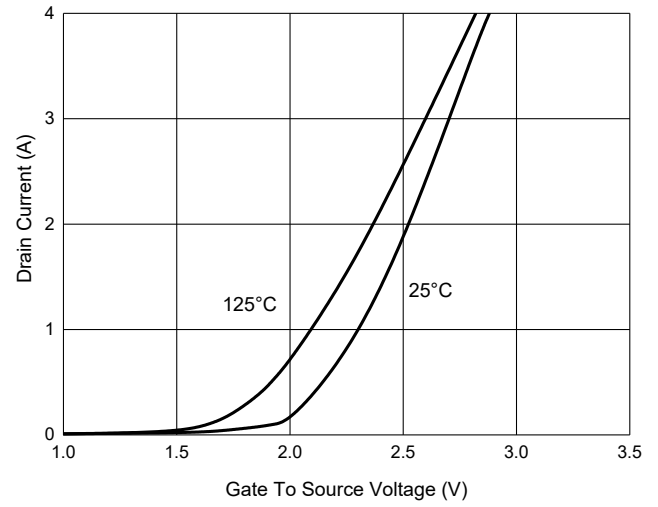


Fig. 3 - $R_{DS(ON)} - I_D$

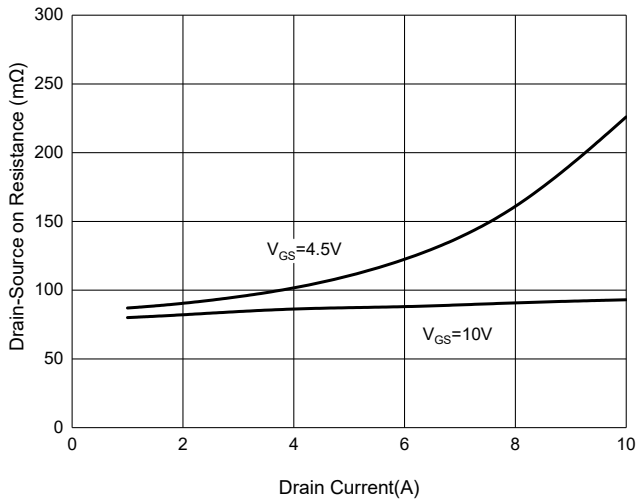


Fig. 4 - Normalized On Resistance Characteristics

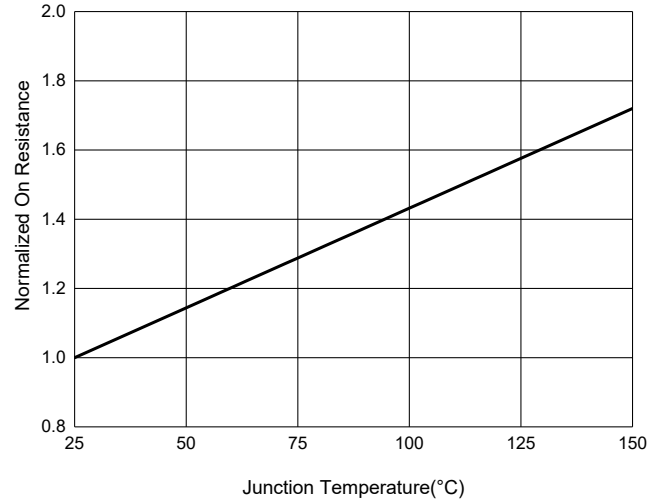


Fig. 5 - Capacitance Characteristics

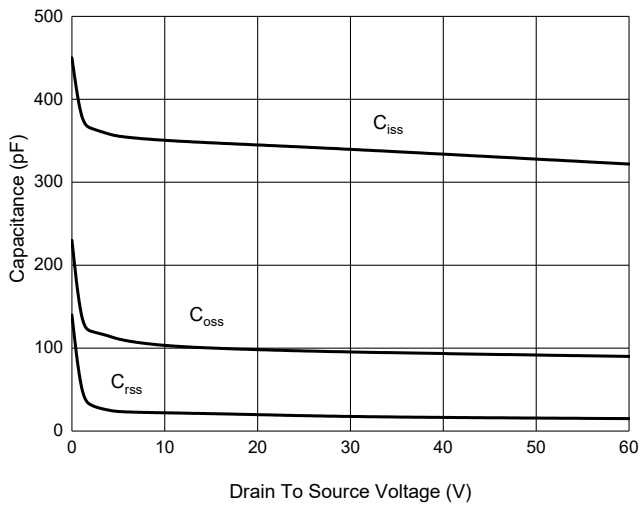
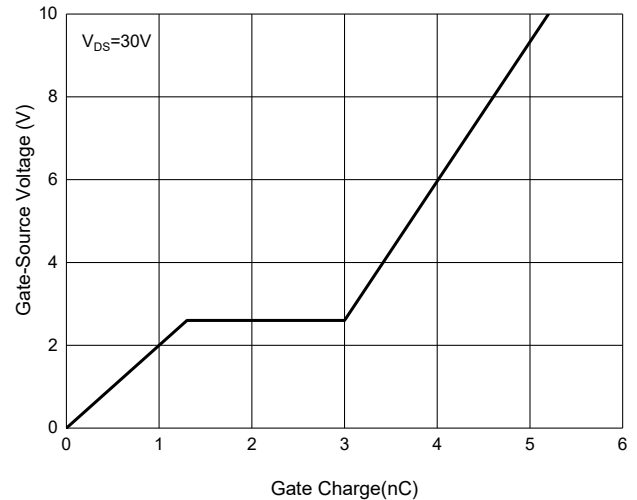
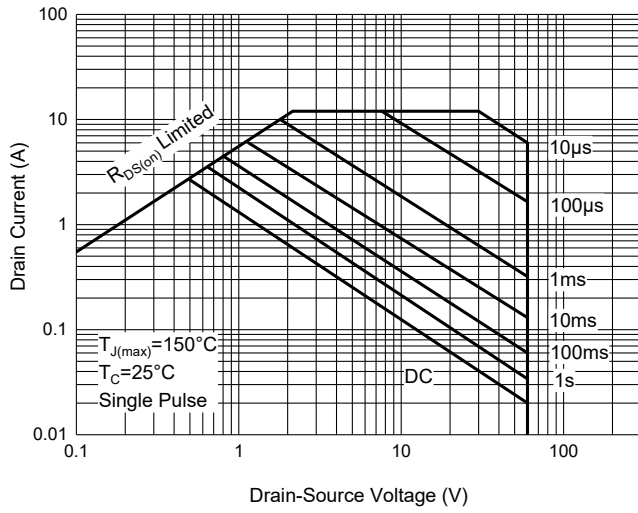


Fig. 6 - Gate Charge



Curve Characteristics

Fig. 7 - Safe Operation Area



Ordering Information

Device	Packing
Part Number-TP	Tape&Reel: 1Kpcs/Reel

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