Features

- Trench Power MV MOSFET Technology
- High Density Cell Design For Ultra Low $R_{DS(on)}$
- Moisture Sensitivity Level 1
- Halogen Free."Green"Device(Note1)
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

P-CHANNEL MOSFET

Maximum Ratings

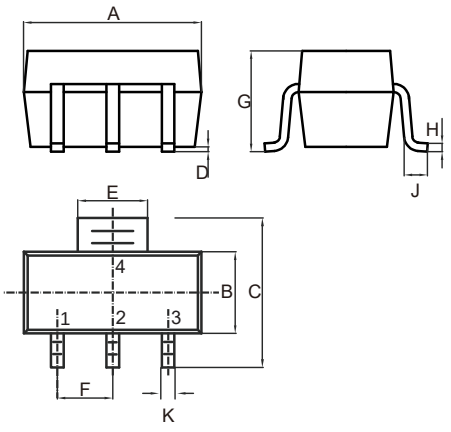
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 60°C/W Junction to Ambient(Note 2)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	-20	V
Gate-Source Volltage		V_{GS}	±10	V
Continuous Drain Current	T_A=25°C	I_D	-15	A
	T_A=100°C		-9.5	
Pulsed Drain Current(Note 3)		I_{DM}	-60	A
Total Power Dissipation(Note 4)		P_D	2.1	W
Single Pulse Avalanche Energy (Note 5)		E_{AS}	16	mJ

Note:

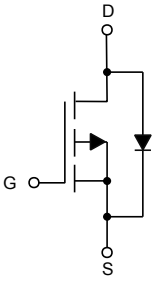
1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. The value of $R_{\theta JA}$ is measured with the device mounted on $1in^2$ FR-4 board with 2oz. Copper, in a still air environment with T_A =25°C.
3. Repetitive rating; pulse width limited by max. junction temperature.
4. P_D is based on max. junction temperature, using junction-ambient thermal resistance.
5. T_J=25°C, V_{DD}=-20V, V_{GS}=-5V, R_G=25Ω, L=0.5mH.

SOT-223

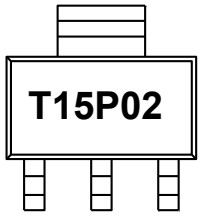


DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.248	0.264	6.30	6.70	
B	0.130	0.146	3.30	3.70	
C	0.264	0.287	6.70	7.30	
D	0.001	0.004	0.02	0.10	
E	0.114	0.122	2.90	3.10	
F	0.091		2.30		TYP.
G	---	0.071	---	1.80	
H	0.009	0.014	0.23	0.35	
J	0.030	---	0.75	---	
K	0.026	0.033	0.66	0.84	

Internal Structure and Marking Code



1.GATE
2.DRAIN
3.SOURCE
4.DRAIN



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=-250μA	-20			V
Gate-Source Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS} =±10V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-20V, V_{GS}=0V			-1	μA
Gate-Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=-250μA	-0.5	-0.6	-0.9	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=-4.5V, I_D=-5.4A		17	25	mΩ
		V_{GS}=-2.5V, I_D=-4A		21	30	
		V_{GS}=-1.8V, I_D=-3A		27	50	
Gate Resistance	R_g	f=1 MHz, Open drain		7.2		Ω
Diode Characteristics						
Continuous Body Diode Current	I_S				-15	A
Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_S=-10A			-1.2	V
Reverse Recovery Time	t_{rr}	I_F=-5.4A, dI/dt=100A/μs		37		ns
Reverse Recovery Charge	Q_{rr}			19		nC
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=-10V,V_{GS}=0V,f=1MHz		1547		pF
Output Capacitance	C_{oss}			218		
Reverse Transfer Capacitance	C_{rss}			187		
Total Gate Charge	Q_g	V_{DS}=-10V,V_{GS}=-4.5V,I_D=-5.4A		40		nC
Gate-Source Charge	Q_{gs}			2.4		
Gate-Drain Charge	Q_{gd}			4.5		
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=-10V, V_{GS}=-4.5V, R_G=3Ω,I_D=-5.4A		11		ns
Turn-On Rise Time	t_r			22		
Turn-Off Delay Time	$t_{d(off)}$			104		
Turn-Off Fall Time	t_f			54		

Curve Characteristics

Fig.1 - Typical Output Characteristics

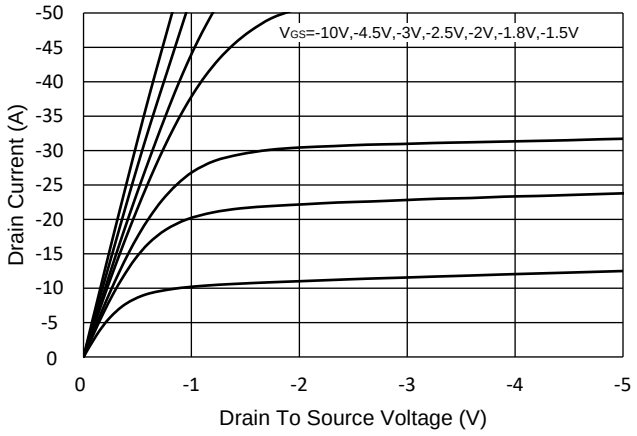


Fig.2 - Transfer Characteristic

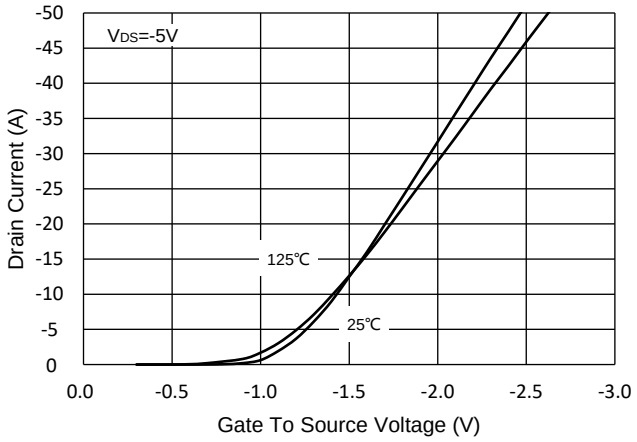


Fig.3 - $R_{DS(ON)}$ - V_{GS}

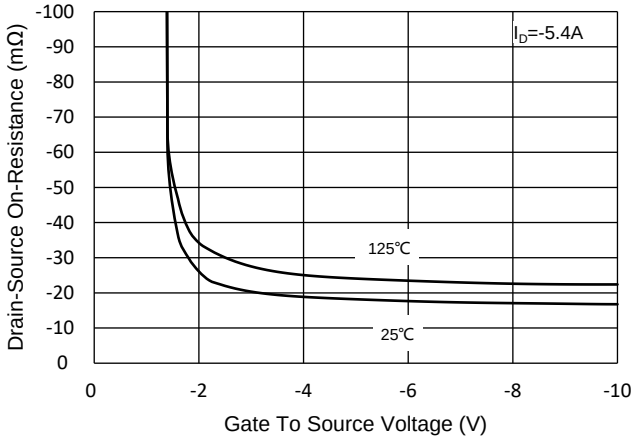


Fig.4 - $R_{DS(ON)}$ - I_D

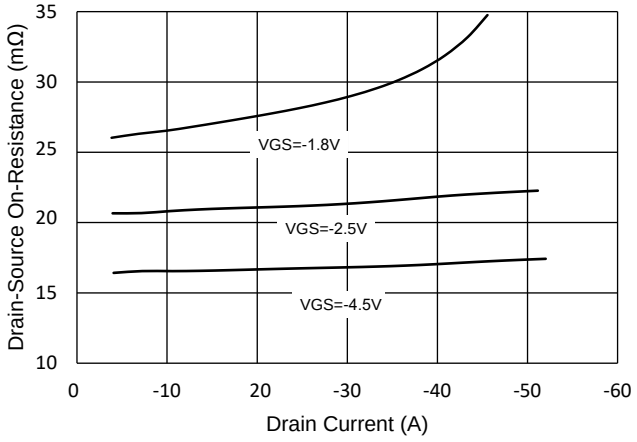


Fig.5 - Capacitance Characteristics

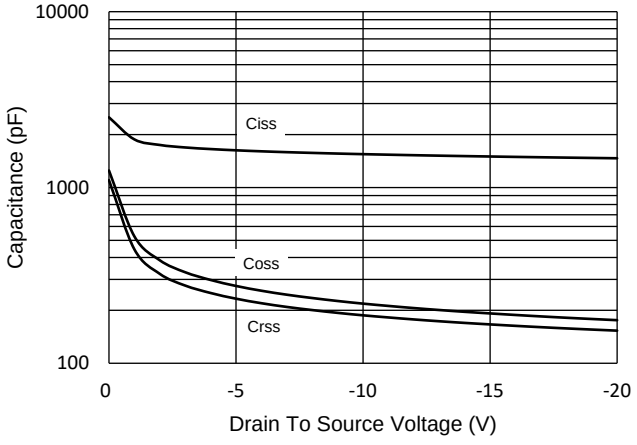
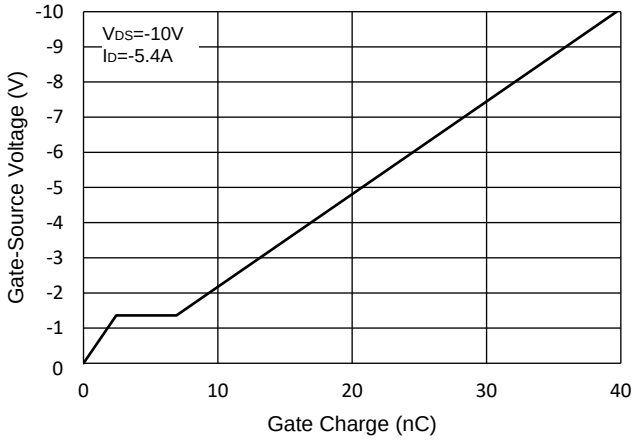


Fig.6 - Gate Charge



Curve Characteristics

Fig.7 - Normalized Threshold Voltage

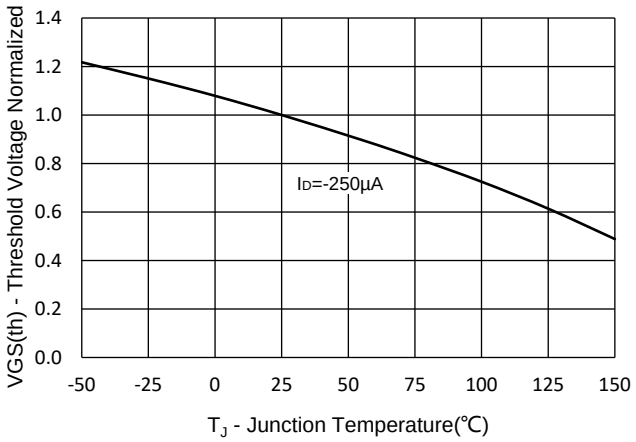


Fig.8 - Normalized On Resistance Characteristics

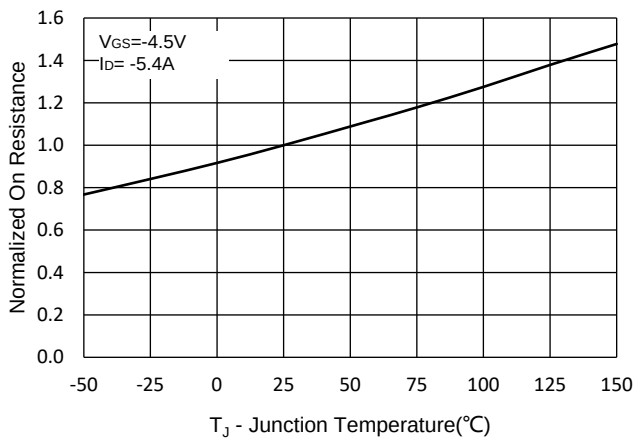


Fig.9 - I_S - V_{SD}

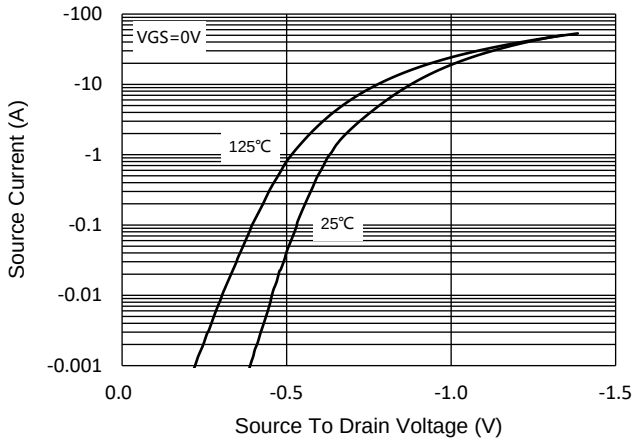


Fig.10 - Drain Current

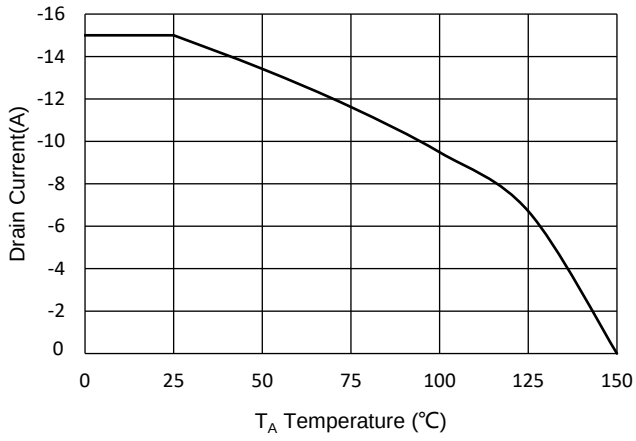
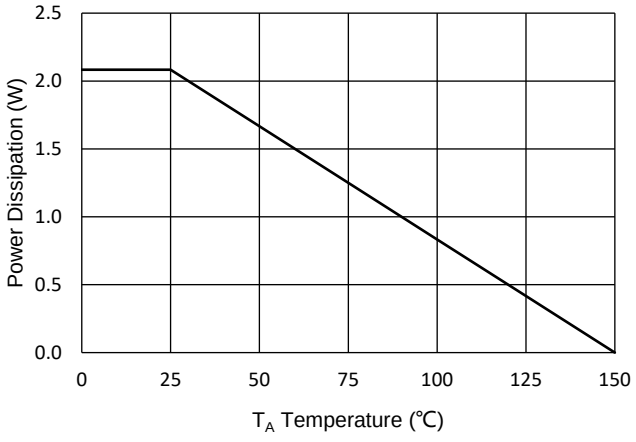


Fig.11 - PD Dissipation



Curve Characteristics

Fig.12 - Safe Operation Area

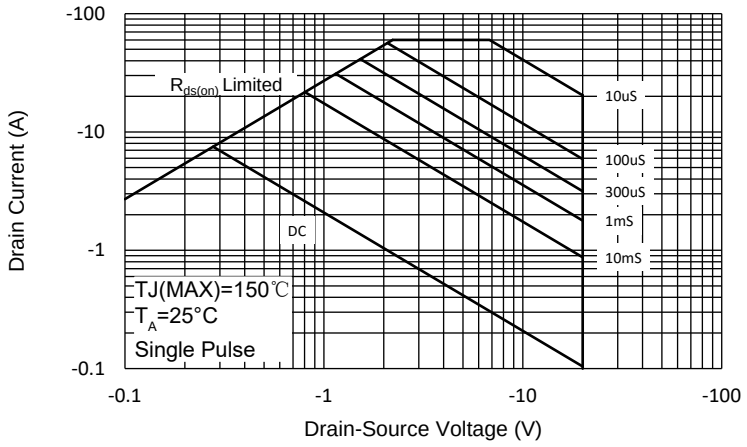
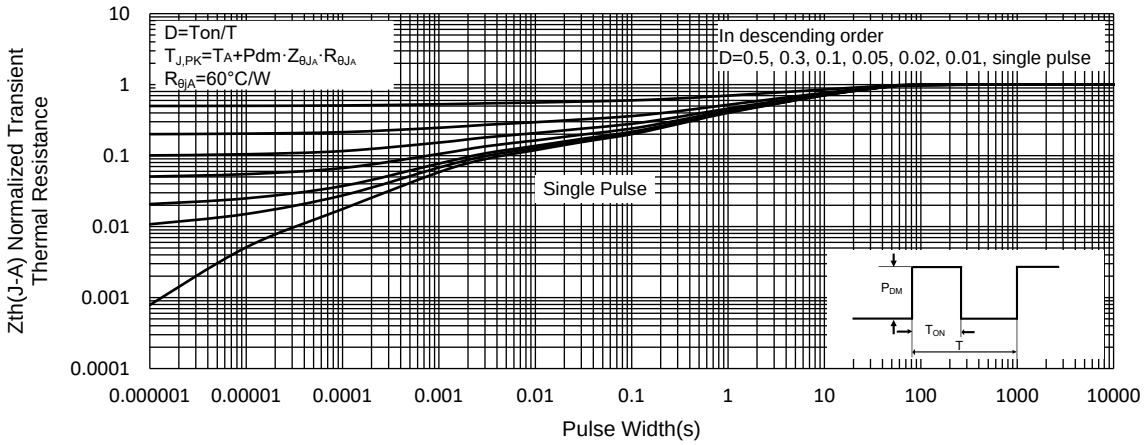


Fig.13 - Normalized Transient Thermal Impedance



Ordering Information

Device	Packing
Part Number-TP	Tape&Reel: 2.5Kpcs/Reel

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