

Features

- P-Channel Switch with Low $R_{DS(on)}$
- Epoxy Meets UL 94 V-0 Flammability Rating
- Halogen Free. "Green" Device (Note 1)
- Moisture Sensitivity Level 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: 100°C/W Junction to Ambient

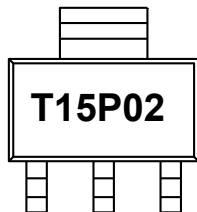
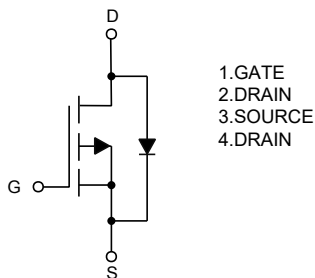
Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	±10	V
Drain Current	I_D	-15	A
Pulsed Drain Current ^(Note 2)	I_{DM}	-30	A
Total Power Dissipation ^(Note 3)	P_D	1.25	W

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. Repetitive Rating : Pulse Width Limited by Junction Temperature.

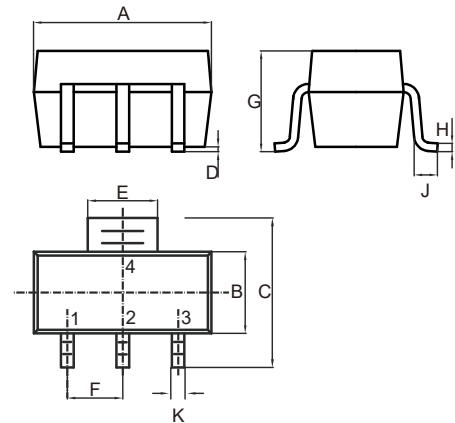
3. This Test is Performed With No Heat Sink at $T_a=25^\circ\text{C}$.

Internal Structure and Marking Code



**P-Channel
MOSFET**

SOT-223



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	

Electrical Characteristics @ 25°C (Unless Otherwise Specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-20			V
Gate-Source Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 10V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-20V, V_{GS}=0V$			-1	μA
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-0.5	-0.61	-0.9	V
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=-4.5V, I_D=-5.4A$		17	25	m Ω
		$V_{GS}=-2.5V, I_D=-4A$		21	30	
		$V_{GS}=-1.8V, I_D=-3A$		27	50	
Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=-10A$		-0.93	-1.2	V
Maximum Body-Diode Continuous Current	I_S				-15	A
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS}=-10V, V_{GS}=0V, f=1MHz$		1600		pF
Output Capacitance	C_{oss}			230		
Reverse Transfer Capacitance	C_{rss}			190		
Total Gate Charge	Q_g	$V_{DS}=-10V, V_{GS}=-4.5V, I_D=-5.4A$		18.6		nC
Gate-Source Charge	Q_{gs}			3.7		
Gate-Drain Charge	Q_{gd}			3.9		
Reverse Recovery Charge	Q_{rr}	$V_{GS}=0V, I_S=-5.4A, di/dt=100A/\mu s$		5.8		
Reverse Recovery Time	t_{rr}			16		
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=-4.5V, V_{DS}=-10V, I_D=-5.4A, R_{GEN}=3\Omega$		12		ns
Turn-On Rise Time	t_r			53		
Turn-Off Delay Time	$t_{d(off)}$			75		
Turn-Off Fall Time	t_f			80		

Curve Characteristics

Fig. 1 - Typical Output Characteristics

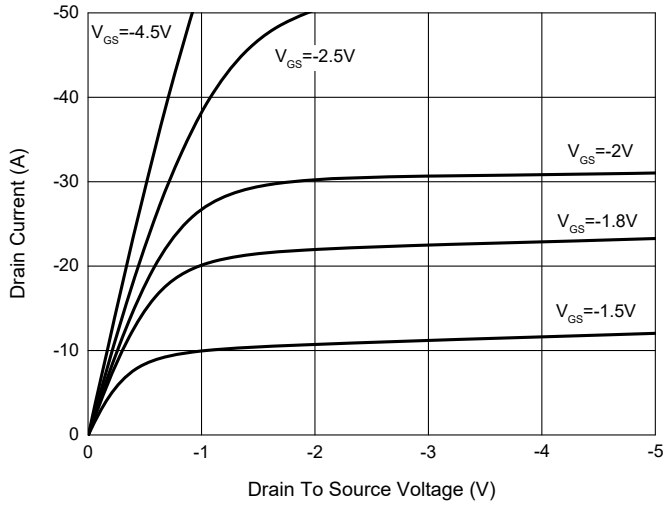


Fig. 2 - Transfer Characteristics

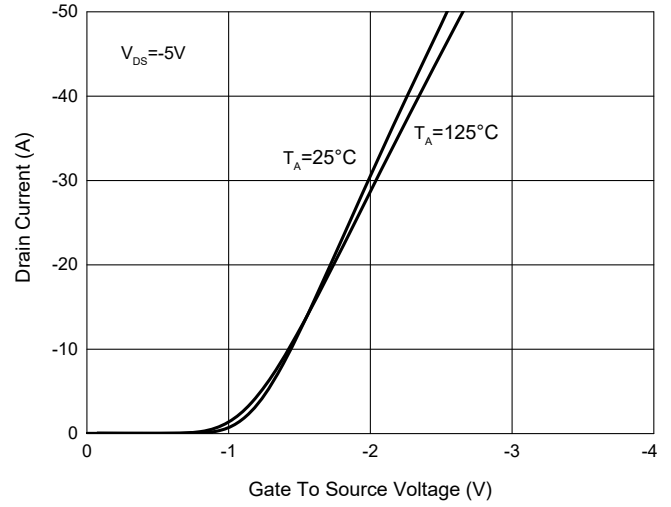


Fig. 3 - $R_{DS(ON)} - I_D$

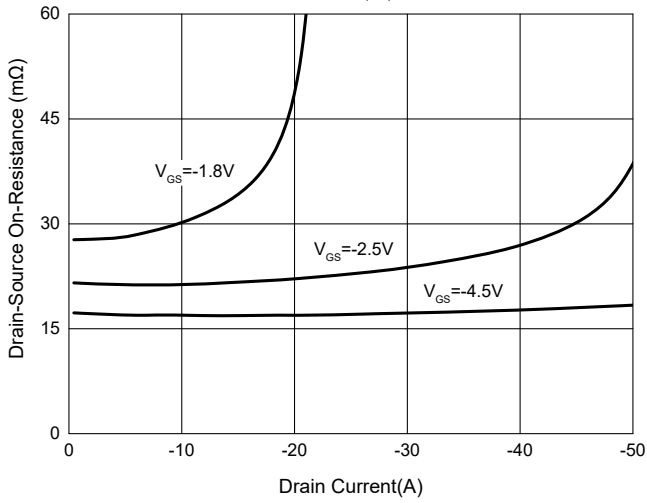


Fig. 4 - Drain-Source on Resistance

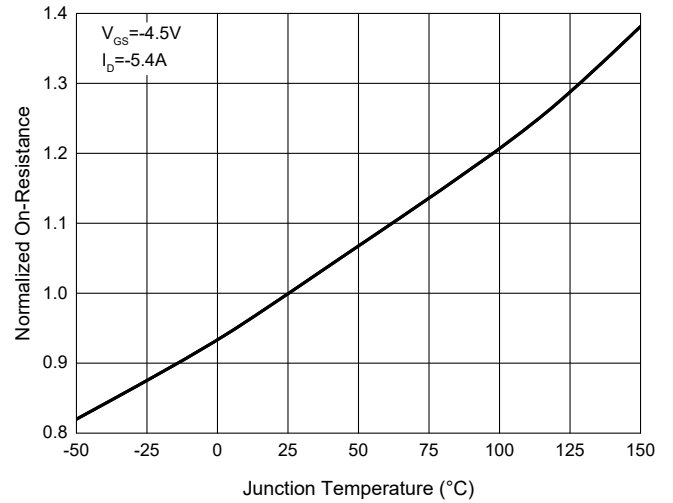


Fig. 5 - $R_{DS(ON)} - V_{GS}$

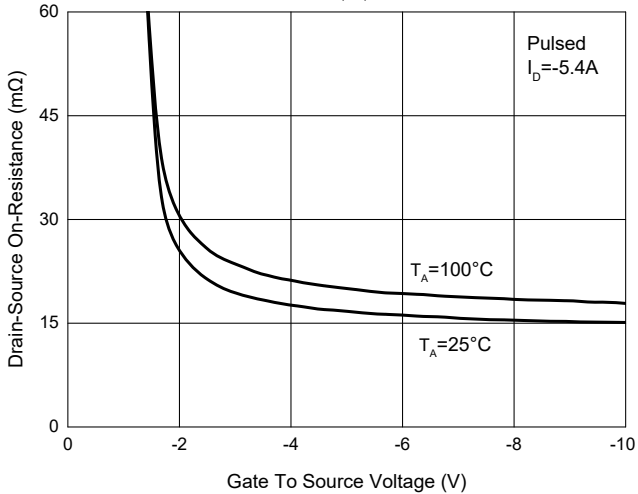
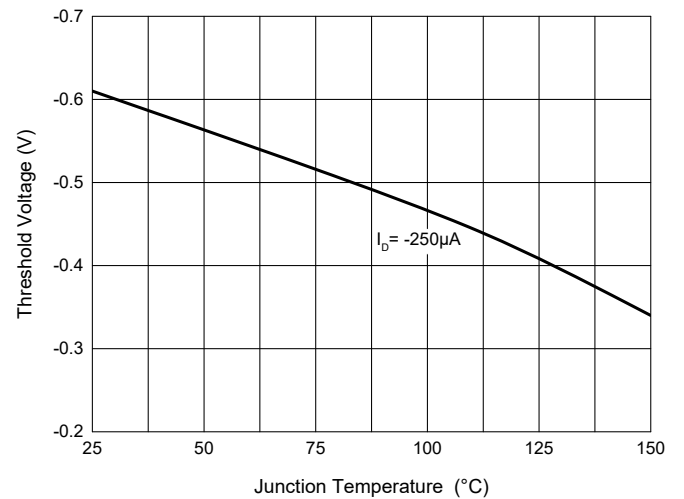


Fig. 6 - Threshold Voltage



Curve Characteristics

Fig. 7 - $I_S - V_{SD}$

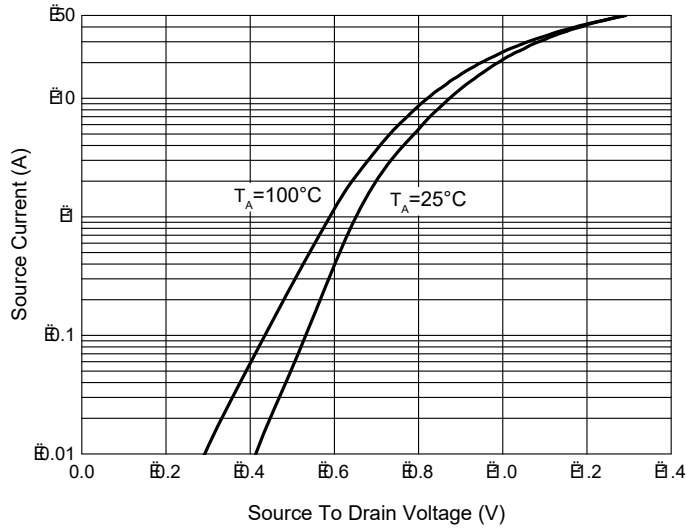


Fig. 8 - Capacitance Characteristics

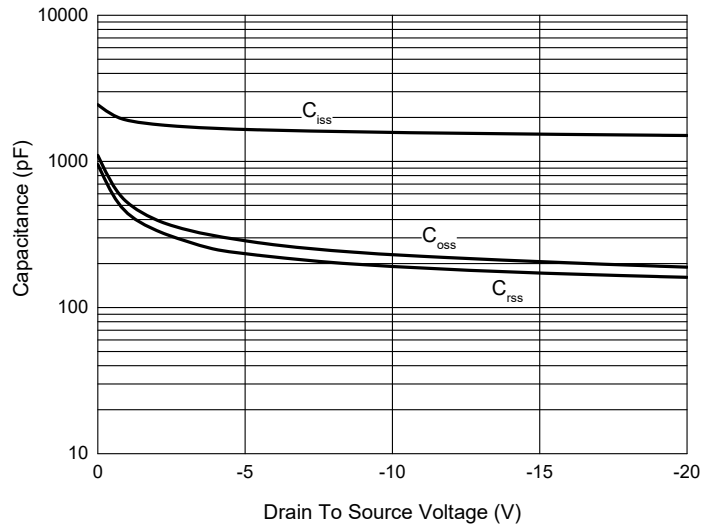


Fig. 9 - Gate Charge

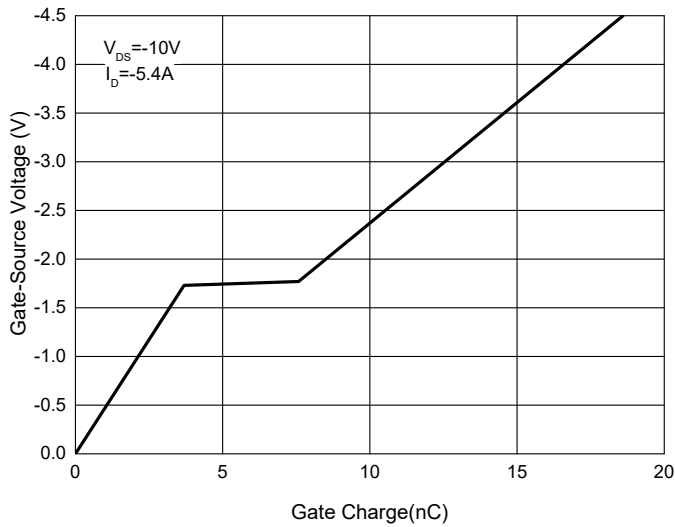


Fig. 10 - Safe Operation Area

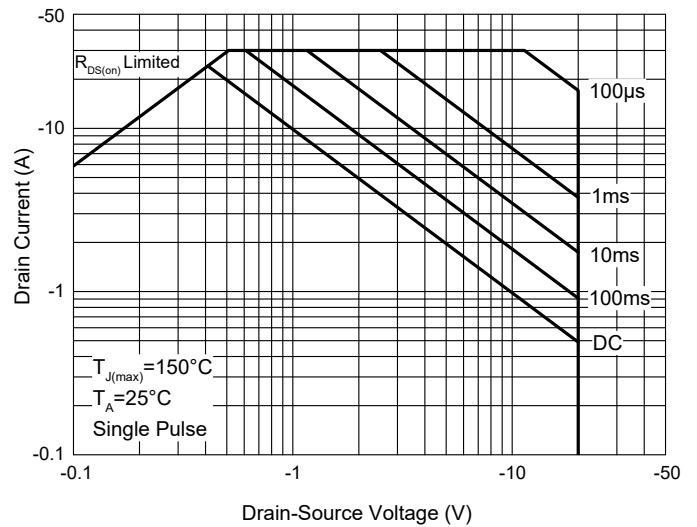
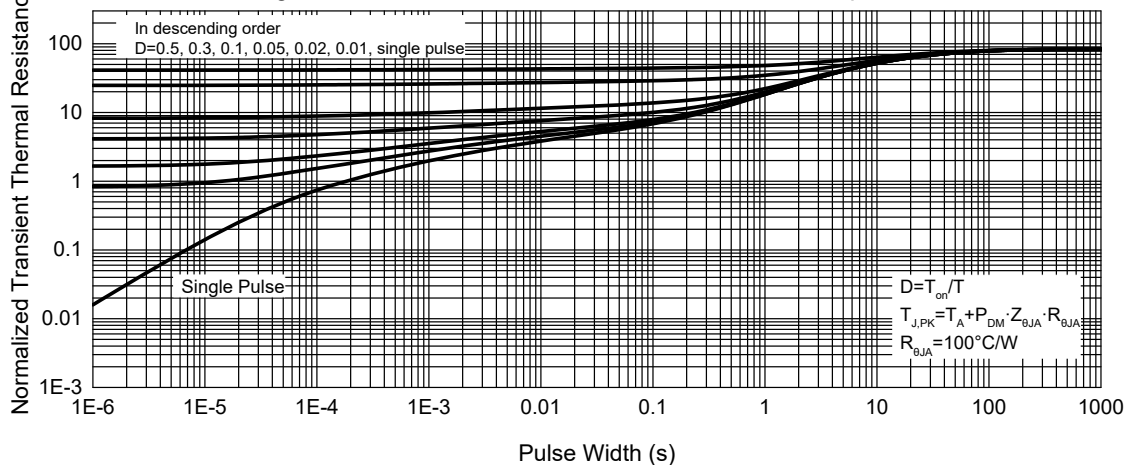


Fig. 11 - Normalized Maximum Transient Thermal Impedance



Ordering Information

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

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