

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 3
- Halogen Free. "Green" Device (Note 1)
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

Maximum Ratings

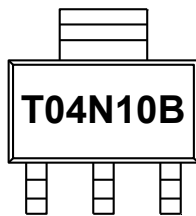
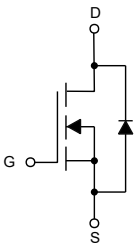
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 100°C/W Junction to Ambient

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	4	A
Pulsed Drain Current	I_{DM}	20	A
Total Power Dissipation	P_D	1.25	W
Single Pulsed Avalanche Energy ^(Note 2)	E_{AS}	16	mJ

Note:

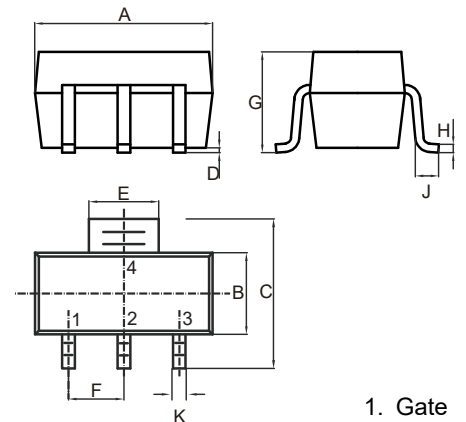
1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. $V_{DD}=50V$, $V_{GS}=10V$, $L=0.5mH$, $I_{AS}=8A$.

Internal Structure and Marking Code



**N-CHANNEL
MOSFET**

SOT-223



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

DIM	DIMENSIONS				NOTE
	INCHES		MM		
	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	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	100			V
Gate-Source Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 20V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=100V, V_{GS}=0V$			1	μA
Gate-Threshold Voltage ^(Note 3)	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1.1	2.0	3	V
Drain-Source On-Resistance ^(Note 3)	$R_{DS(on)}$	$V_{GS}=10V, I_D=5A$		77	105	m Ω
		$V_{GS}=4.5V, I_D=3.2A$		90	120	
Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=4A$		0.86	1.2	V
Continuous Body Diode Current	I_S				4	A
Dynamic Characteristics^(Note 4)						
Input Capacitance	C_{iss}	$V_{DS}=50V, V_{GS}=0V, f=1MHz$		1143		pF
Output Capacitance	C_{oss}			41		
Reverse Transfer Capacitance	C_{rss}			33		
Gate Resistance	R_G	$f=1MHz, \text{Open drain}$		0.94		Ω
Total Gate Charge	Q_g	$V_{DS}=50V, V_{GS}=10V, I_D=5A$		22		nC
Gate-Source Charge	Q_{gs}			5.9		
Gate-Drain Charge	Q_{gd}			3.8		
Reverse Recovery Charge	Q_{rr}	$I_S=5A, di/dt=100A/\mu s$		58		
Reverse Recovery Time	t_{rr}			57		
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=10V, V_{DD}=50V, I_D=5A$ $R_G=6\Omega$		10		ns
Turn-On Rise Time	t_r			24		
Turn-Off Delay Time	$t_{d(off)}$			25		
Turn-Off Fall Time	t_f			30		

 Note 3. Pulse Test : Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.

4. Guaranteed by Design, Not Subject to Production Testing.

Curve Characteristics

Fig. 1 - Typical Output Characteristics

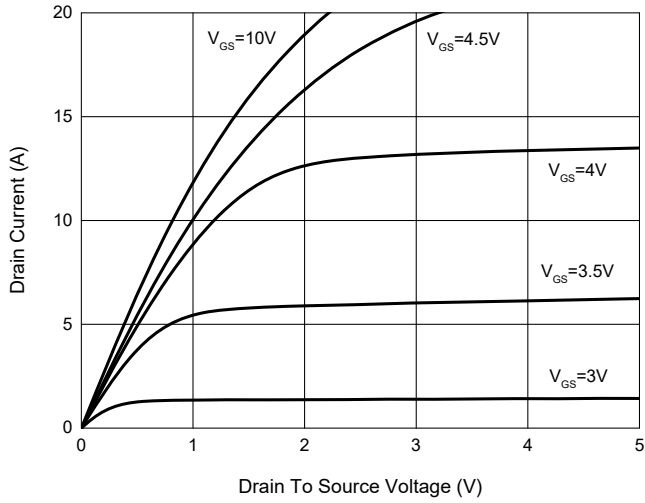


Fig. 2 - Transfer Characteristics

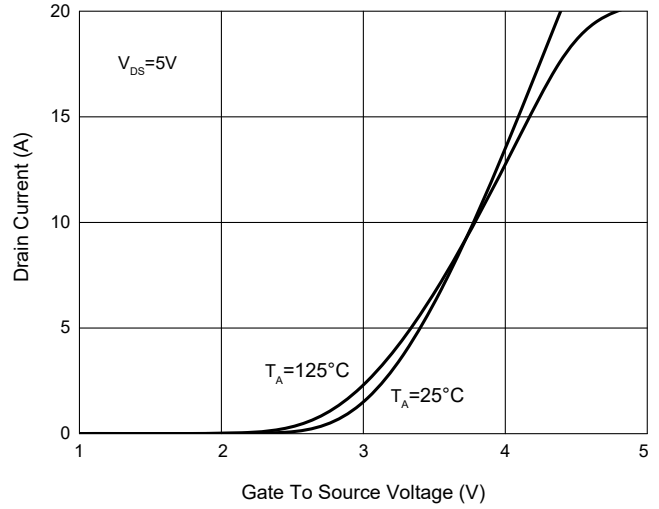


Fig. 3 - $R_{DS(ON)} - I_D$

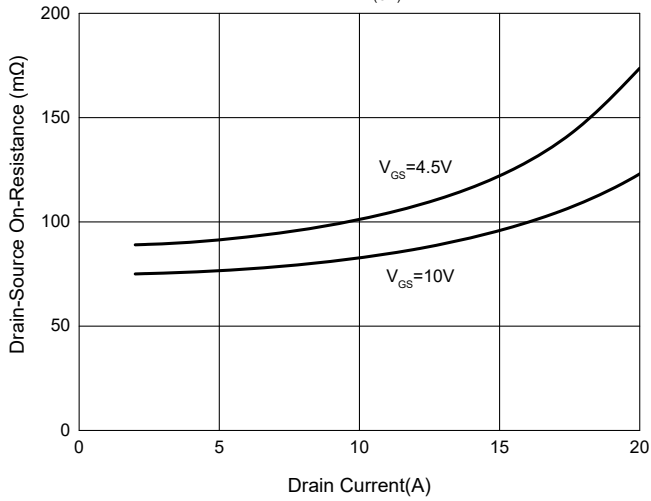


Fig. 4 - $R_{DS(ON)} - V_{GS}$

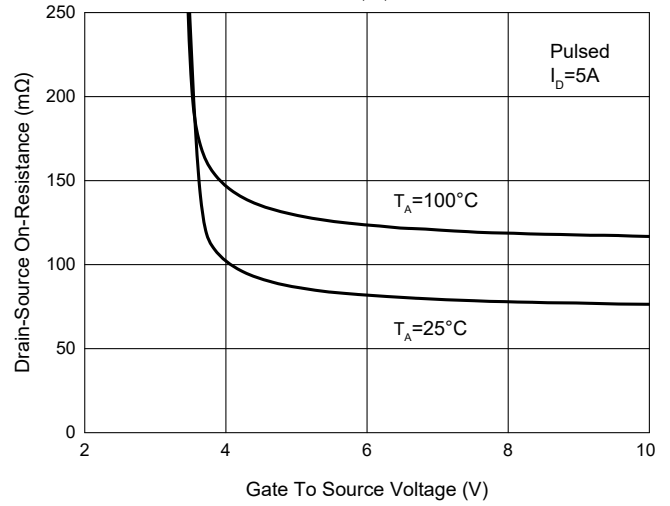


Fig. 5 - Threshold Voltage

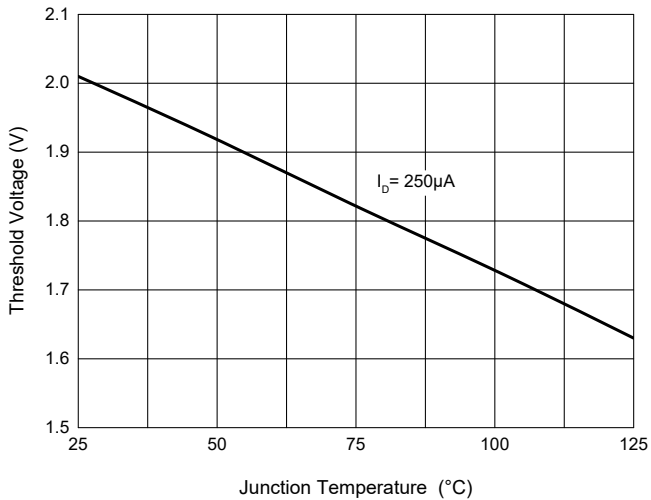
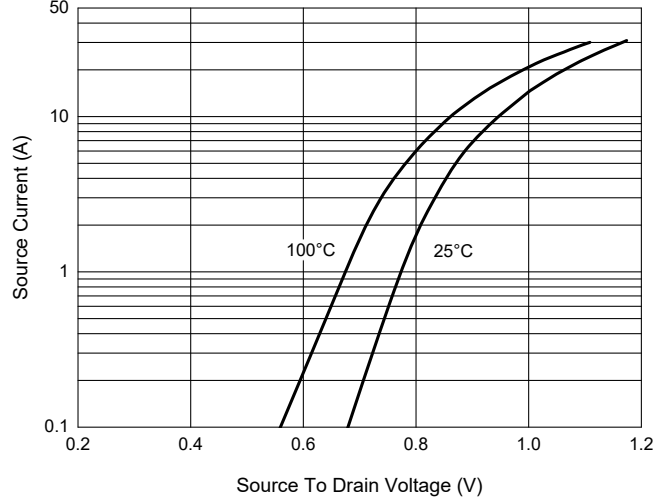


Fig. 6 - $I_S - V_{SD}$



Curve Characteristics

Fig. 7 - Capacitance Characteristics

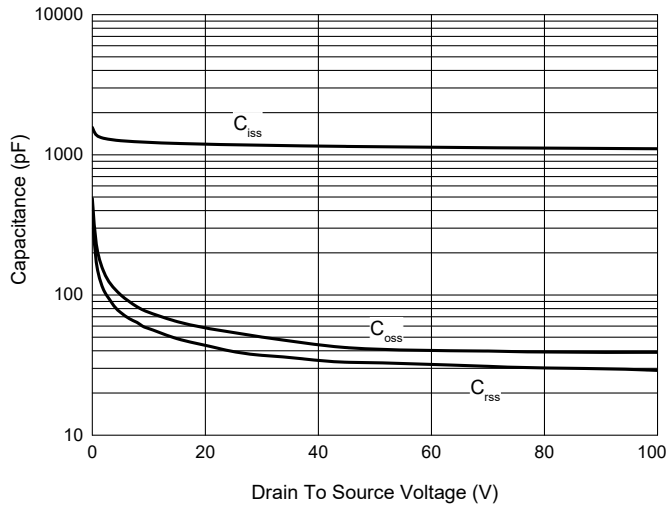


Fig. 8 - Gate Charge

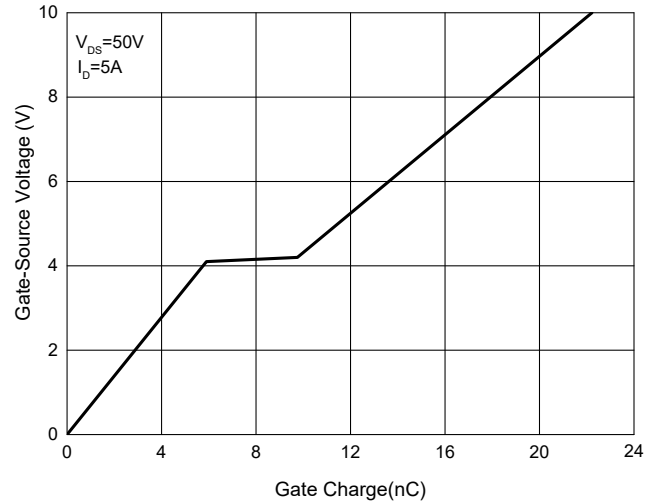


Fig. 9 - Safe Operation Area

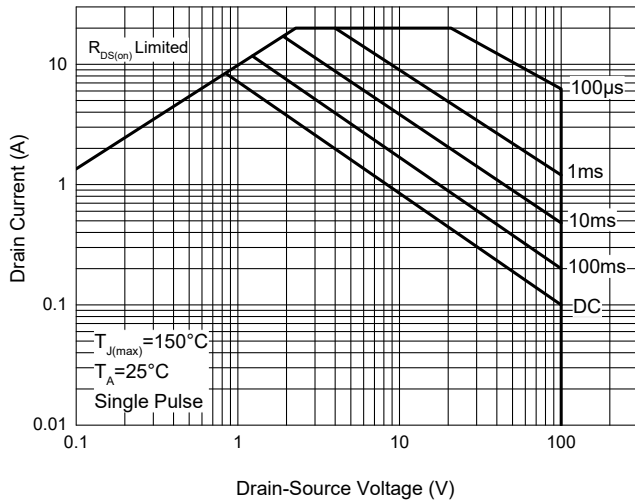
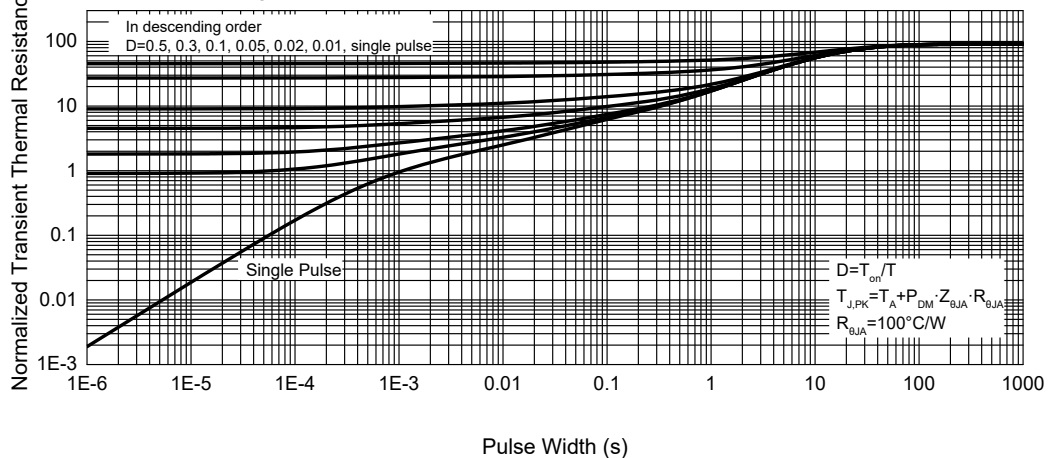


Fig. 10 - Normalized Maximum Transient Thermal Impedance



Ordering Information

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

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