

Features

- Trench Power MV MOSFET Technology
- High Density Cell Design For Ultra Low $R_{DS(on)}$
- Moisture Sensitivity Level 3
- 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)

Maximum Ratings

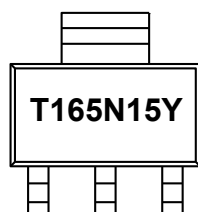
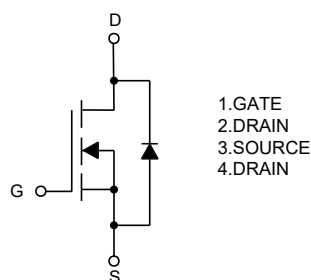
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 70°C/W Junction to Ambient^(Note 2)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	150	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	$T_A=25^\circ\text{C}$	A
		$T_A=100^\circ\text{C}$	
Pulsed Drain Current ^(Note 3)	I_{DM}	8.8	A
Total Power Dissipation ^(Note 4)	P_D	1.78	W

Note:

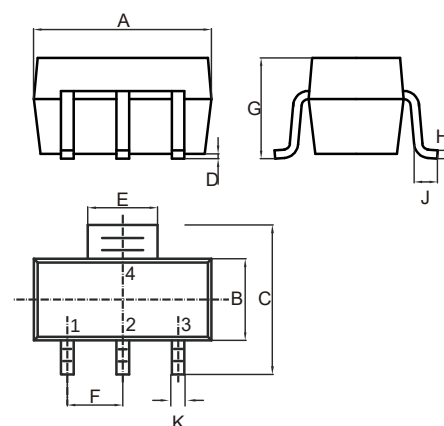
1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. The value of $R_{\theta JA}$ is measured with the device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with $T_A=25^\circ\text{C}$.
3. Repetitive rating; pulse width limited by max. junction temperature.
4. P_D is based on max. junction temperature, using junction-case thermal resistance.

Internal Structure and Marking Code



N-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 =250μA	150			V
Gate-Source Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =150V, V _{GS} =0V			1	μA
Gate-Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1.5	2	2.5	V
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =10V, I _D =2A		130	165	mΩ
Gate Resistance	R _g	f=1 MHz, Open drain		1.6		Ω
Diode Characteristics						
Continuous Body Diode Current	I _S				2	A
Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =2A			1.2	V
Reverse Recovery Time	t _{rr}	I _F =2A, dI/dt=100A/μs		38.4		ns
Reverse Recovery Charge	Q _{rr}			41.3		nC
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =75V, V _{GS} =0V, f=1MHz		244		pF
Output Capacitance	C _{oss}			25		
Reverse Transfer Capacitance	C _{rss}			2		
Total Gate Charge	Q _g	V _{DS} =75V, V _{GS} =10V, I _D =2A		4.5		nC
Gate-Source Charge	Q _{gs}			0.8		
Gate-Drain Charge	Q _{gd}			1.7		
Turn-On Delay Time	t _{d(on)}	V _{DD} =75V, V _{GS} =10V, R _G =3Ω, I _D =2A		3.3		ns
Turn-On Rise Time	t _r			2.5		
Turn-Off Delay Time	t _{d(off)}			8.7		
Turn-Off Fall Time	t _f			5.2		

Curve Characteristics

Fig. 1 - Typical Output Characteristics

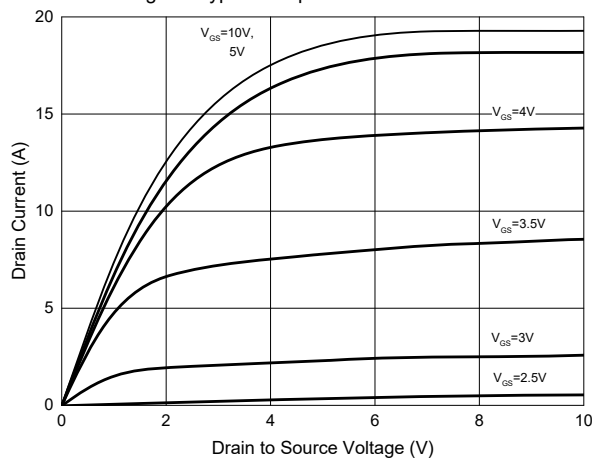


Fig. 2 - Transfer Characteristics

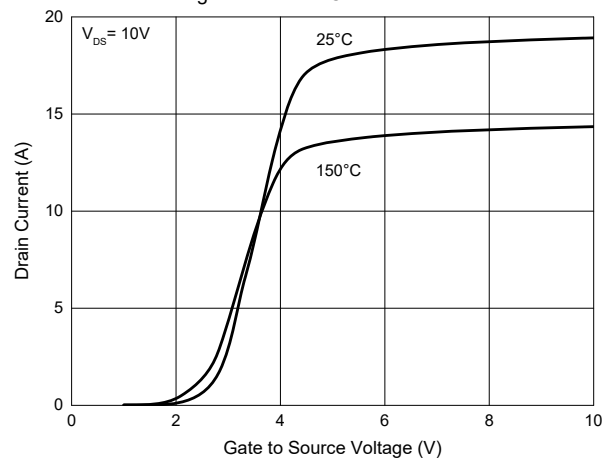


Fig. 3 - $R_{DS(ON)} - V_{GS}$

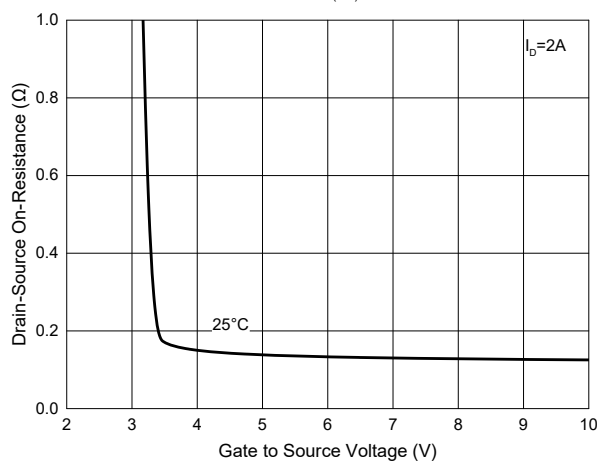


Fig. 4 - $R_{DS(ON)} - I_D$

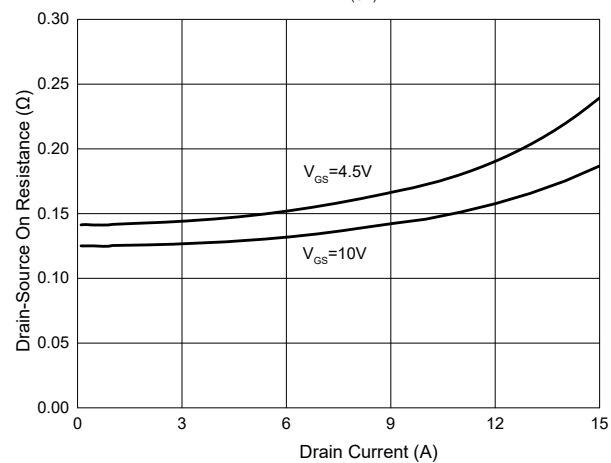


Fig. 5 - Capacitance Characteristics

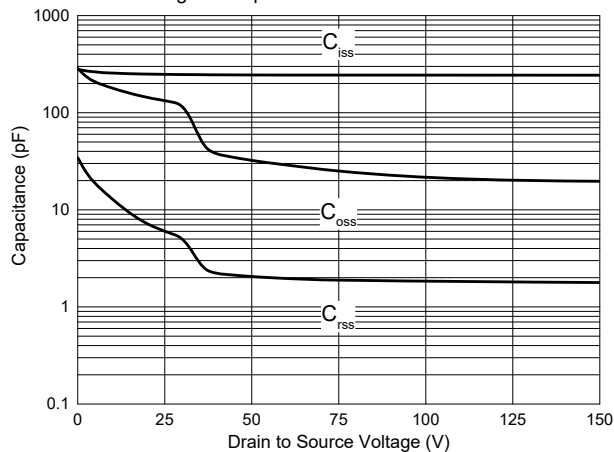
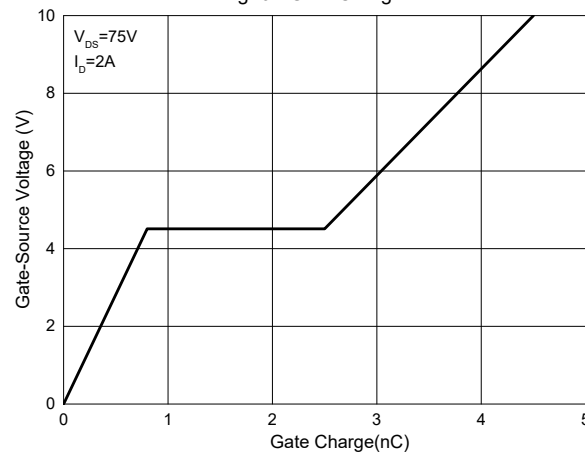


Fig. 6 - Gate Charge



Curve Characteristics

Fig. 7 - Normalized Threshold Voltage

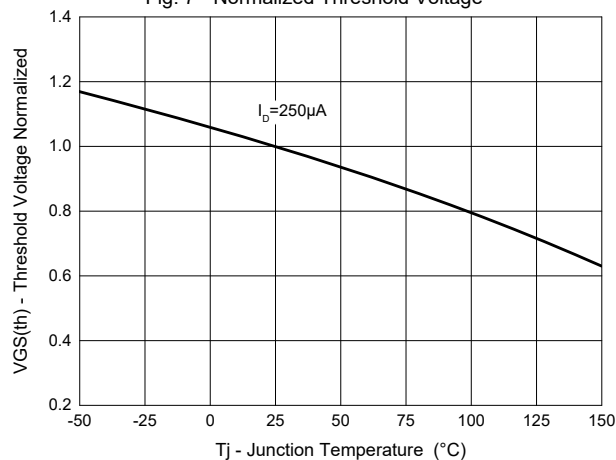


Fig. 8 - Normalized On Resistance Characteristics

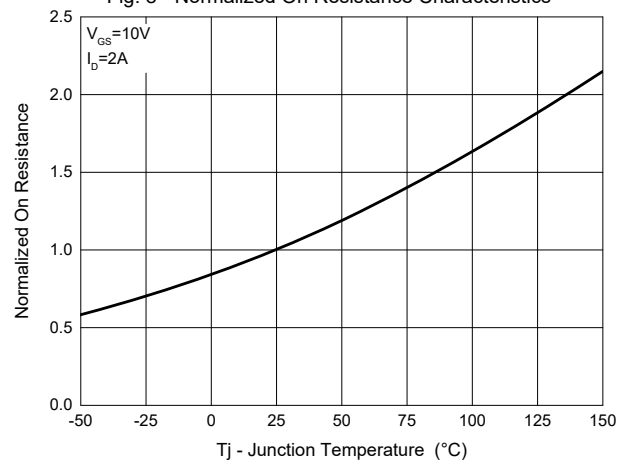


Fig. 9 - I_S - V_{SD}

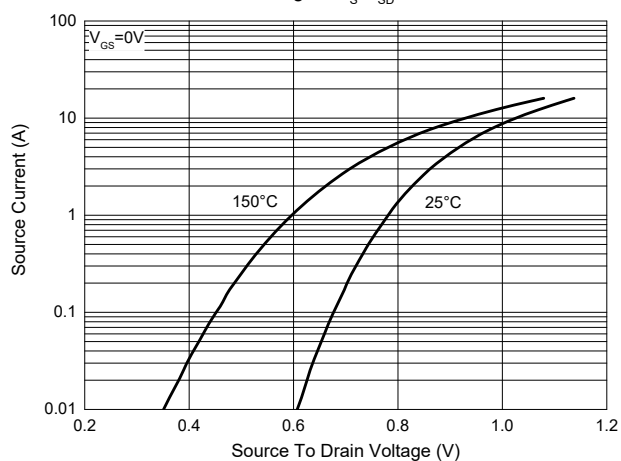


Fig. 10 - Drain Current

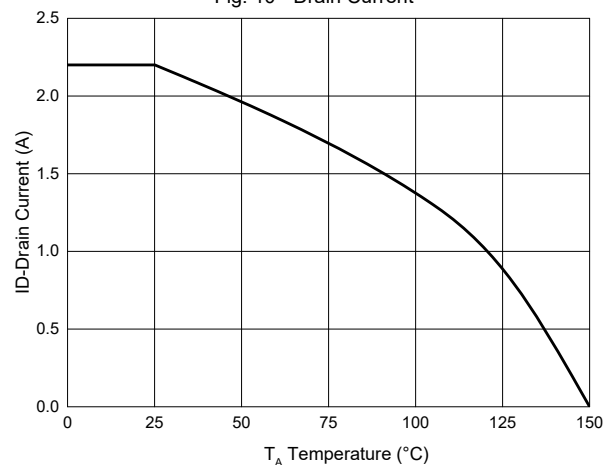
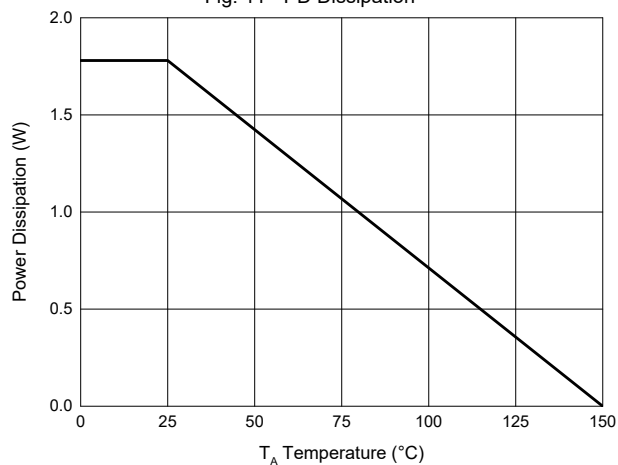


Fig. 11 - PD Dissipation



Curve Characteristics

Fig. 12 - Safe Operation Area

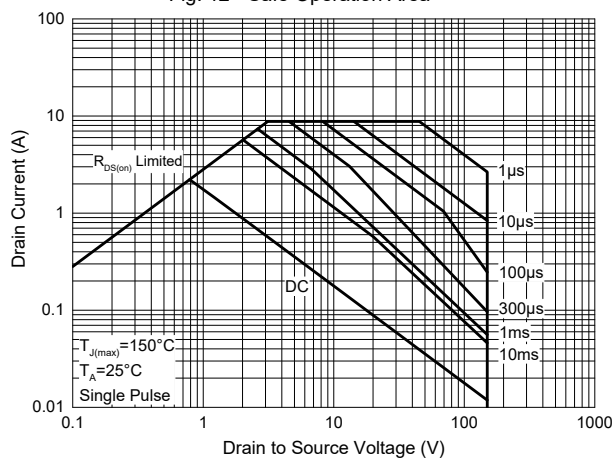
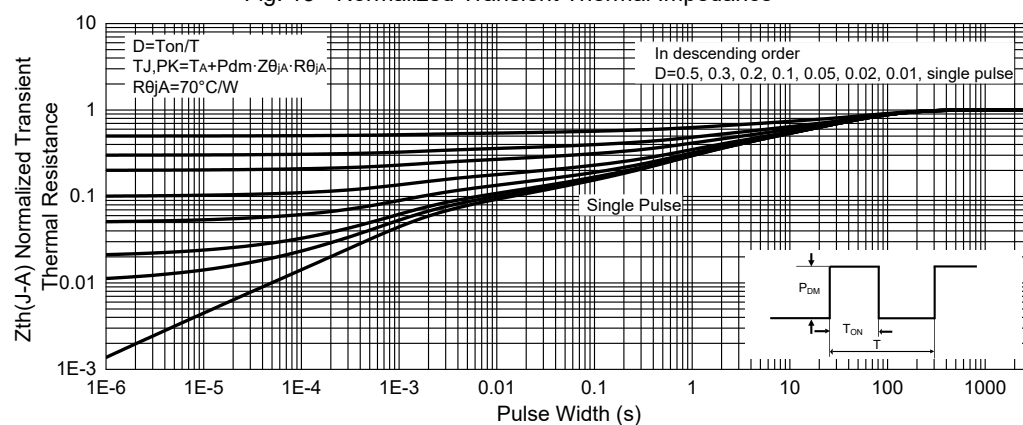


Fig. 13 - Normalized Transient Thermal Impedance



Ordering Information

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

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