

## Features

- Split Gate Trench MOSFET Technology
- Excellent Stability And Uniformity
- Moisture Sensitivity Level 3
- Halogen Free. “Green” Device (Note 1)
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

## Maximum Ratings

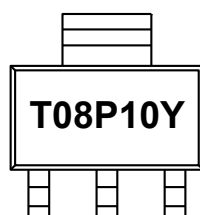
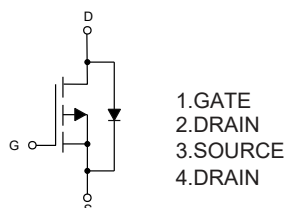
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 56.8°C/W Junction to Ambient<sup>(Note 2)</sup>

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		$V_{DS}$	-100	V
Gate-Source Voltage		$V_{GS}$	$\pm 20$	V
Continuous Drain Current	$T_A = 25^\circ\text{C}$	$I_D$	-8	A
	$T_A = 100^\circ\text{C}$		-5	
Pulsed Drain Current <sup>(Note3)</sup>		$I_{DM}$	-32	A
Total Power Dissipation <sup>(Note4)</sup>		$P_D$	2.2	W

Note:

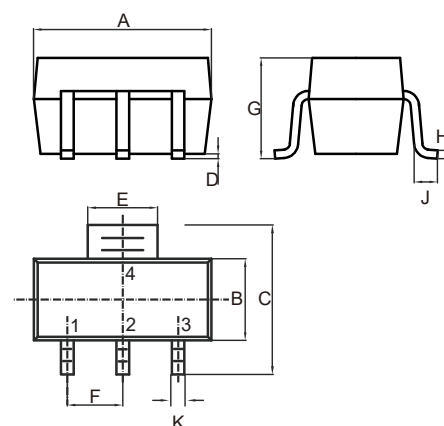
1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. The Value of  $R_{\theta JA}$  is Measured with the Device Mounted on 1in2 FR-4 Board with 1oz. Copper, in a Still Air Environment with  $T_A=25^{\circ}\text{C}$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

4bYfbU'Gfi Wi fY'UbX'A Uf\_]b[ '7 cXY



# P-CHANNEL MOSFET

SOT-223



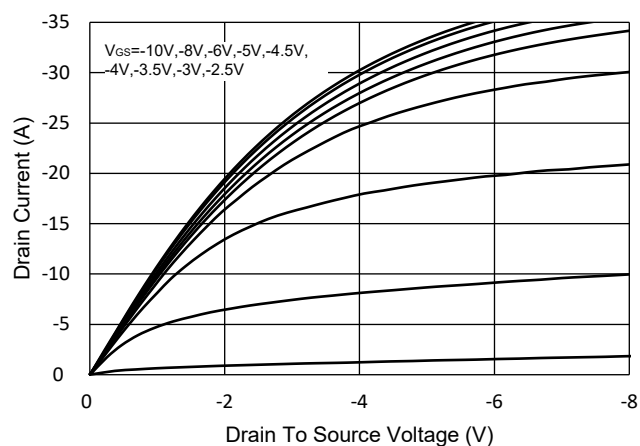
DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.248	0.264	6.30	6.70	
B	0.130	0.146	3.30	3.70	
C	0.264	0.287	6.70	7.30	
D	0.001	0.004	0.02	0.10	
E	0.114	0.122	2.90	3.10	
F	0.091		2.30		TYP.
G	---	0.071	---	1.80	
H	0.009	0.014	0.23	0.35	
J	0.030	---	0.75	---	
K	0.026	0.033	0.66	0.84	

**Electrical Characteristics @ 25°C (Unless Otherwise Specified)**

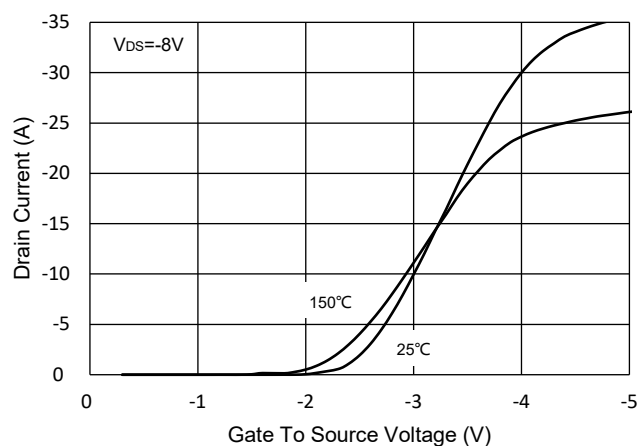
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> =0V, I <sub>D</sub> =-250μA	-100			V
Gate-Source Leakage Current	I <sub>GSS</sub>	V <sub>DS</sub> =0V, V <sub>GS</sub> =±20V			±100	nA
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =-100V, V <sub>GS</sub> =0V			-1	μA
		V <sub>DS</sub> =-100V, V <sub>GS</sub> =0V, T <sub>J</sub> =55°C			-5	μA
Gate-Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =-250μA	-1	-1.8	-2.5	V
Drain-Source On-Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> =-10V, I <sub>D</sub> =-8A		95	110	mΩ
		V <sub>GS</sub> =-4.5V, I <sub>D</sub> =-5A		103	130	
Gate Resistance	R <sub>g</sub>	f=1 MHz, Open drain		9.5		Ω
Diode Characteristics						
Continuous Body Diode Current	I <sub>S</sub>				-8	A
Diode Forward Voltage	V <sub>SD</sub>	V <sub>GS</sub> =0V, I <sub>S</sub> =-8A		-0.9	-1.3	V
Reverse Recovery Time	t <sub>rr</sub>	I <sub>S</sub> =-5A, di/dt=100A/μs		38		ns
Reverse Recovery Charge	Q <sub>rr</sub>			70		nC
Dynamic Characteristics						
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =-80V, V <sub>GS</sub> =0V, f=1MHz		1080		pF
Output Capacitance	C <sub>oss</sub>			93		
Reverse Transfer Capacitance	C <sub>rss</sub>			9		
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> =-50V, V <sub>GS</sub> =-10V, I <sub>D</sub> =-5A		20		nC
Gate-Source Charge	Q <sub>gs</sub>			2.9		
Gate-Drain Charge	Q <sub>gd</sub>			3.5		
Turn-On Delay Time	t <sub>d(on)</sub>	V <sub>GS</sub> =-10V, V <sub>DD</sub> =-50V, I <sub>DS</sub> =-20A, R <sub>GEN</sub> =6Ω		7		ns
Turn-On Rise Time	t <sub>r</sub>			14		
Turn-Off Delay Time	t <sub>d(off)</sub>			43		
Turn-Off Fall Time	t <sub>f</sub>			35		

## Curve Characteristics

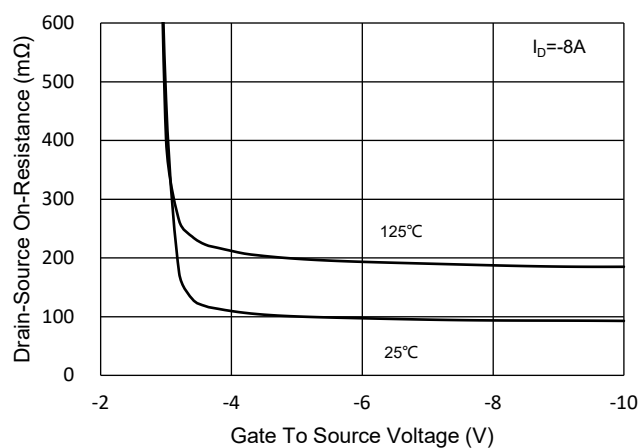
**Fig.1 - Typical Output Characteristics**



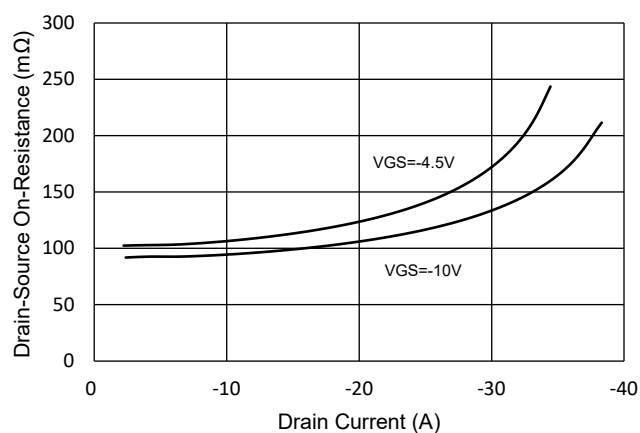
**Fig.2 - Transfer Characteristic**



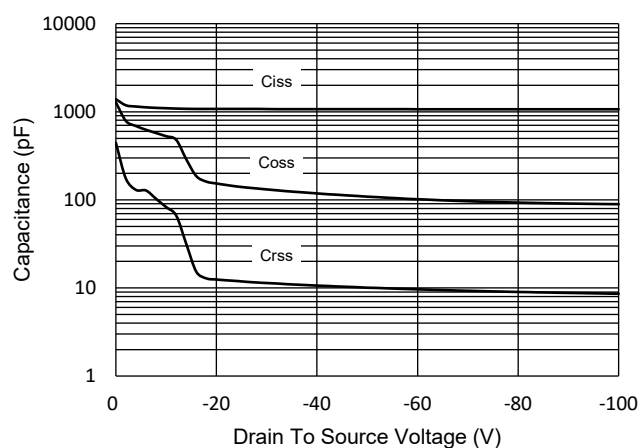
**Fig.3 -  $R_{DS(ON)}$  -  $V_{GS}$**



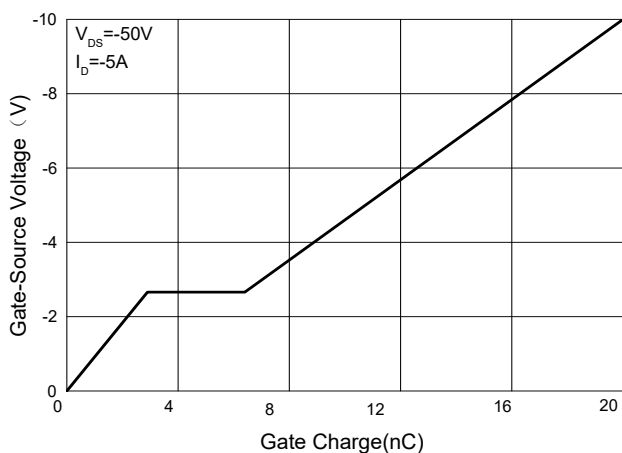
**Fig.4 -  $R_{DS(ON)}$  -  $I_D$**



**Fig.5 - Capacitance Characteristics**

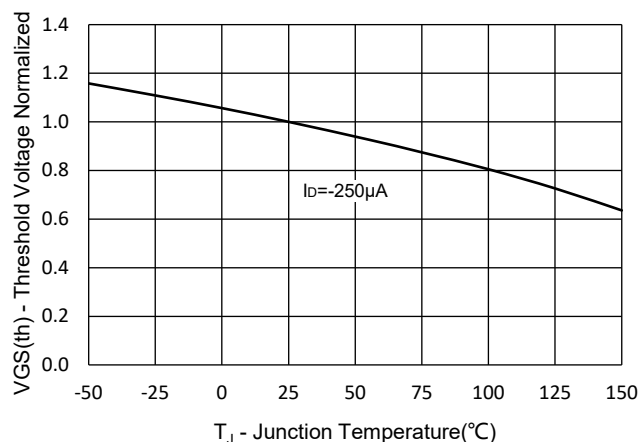


**Fig. 6 - Gate Charge**

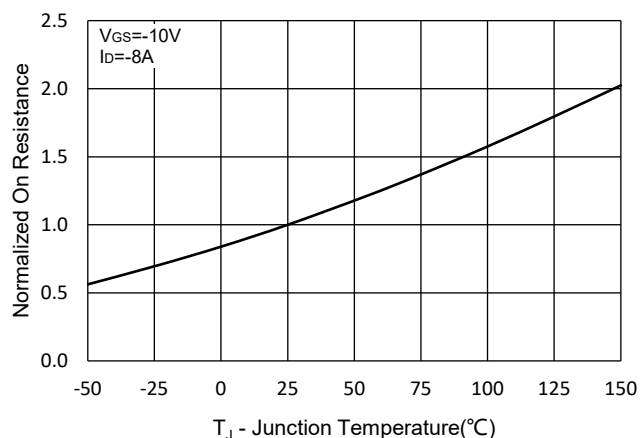


## Curve Characteristics

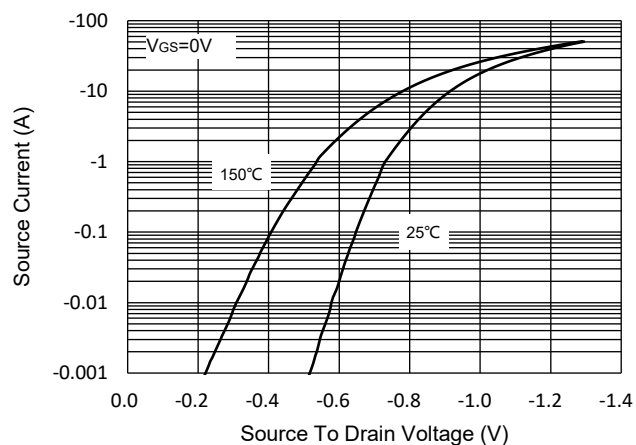
**Fig.7 - Normalized Threshold Voltage**



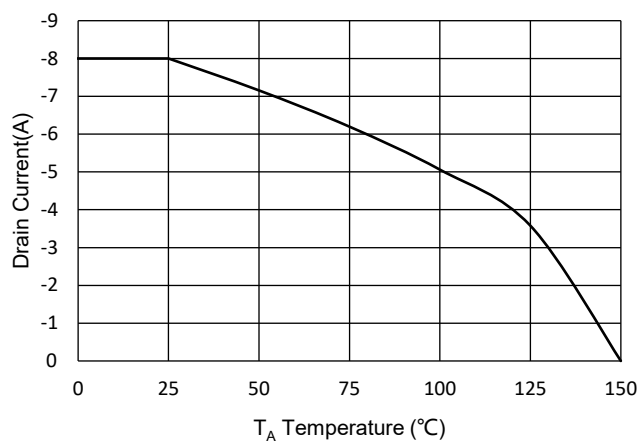
**Fig.8 - Normalized On Resistance Characteristics**



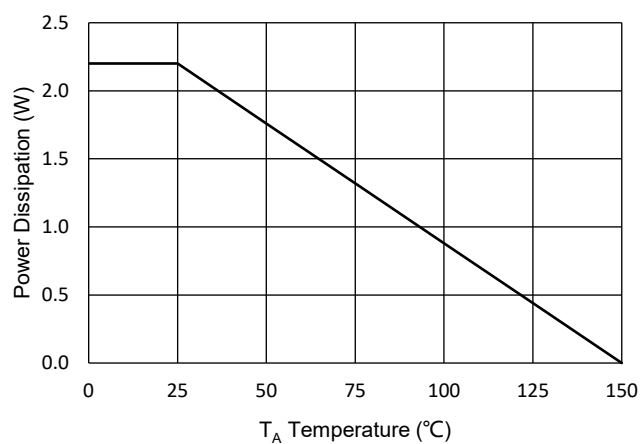
**Fig.9 -  $I_S$  -  $V_{SD}$**



**Fig.10 - Drain Current**

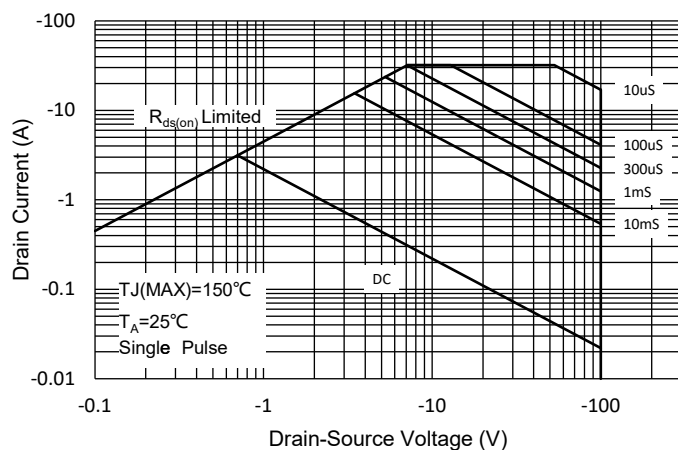


**Fig.11 - PD Dissipation**

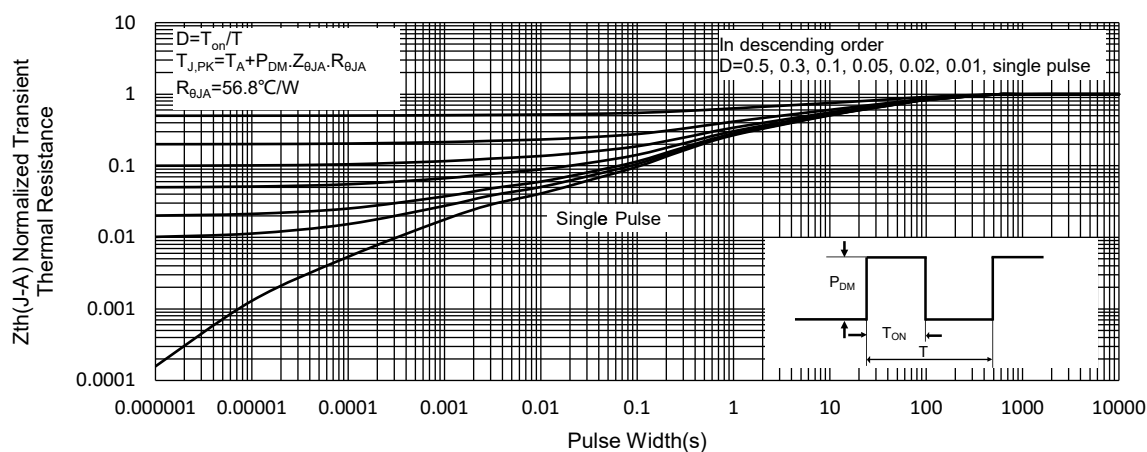


## Curve Characteristics

**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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