

### Features

- Trench LV MOSFET Technology
- ESD Protected Up To 2KV (HBM)
- Fast Switching Speed
- Moisture Sensitivity Level 1
- 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

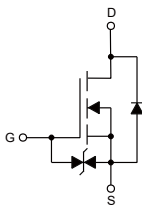
- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 500°C/W Junction to Ambient (Note 2)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DS}$	20	V
Gate-Source Voltage	$V_{GS}$	±12	V
Drain Current-Continuous	$I_D$	$T_A=25^\circ\text{C}$	0.75
		$T_A=70^\circ\text{C}$	0.6
Drain Current-Pulsed (Note 3)	$I_{DM}$	3	A
Power Dissipation (Note 4)	$P_D$	0.25	W

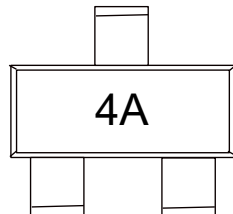
Note:

1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. The value of  $R_{\theta JA}$  is measured with the device mounted on 1in<sup>2</sup> 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-ambient thermal resistance.

### Internal Structure and Marking Code

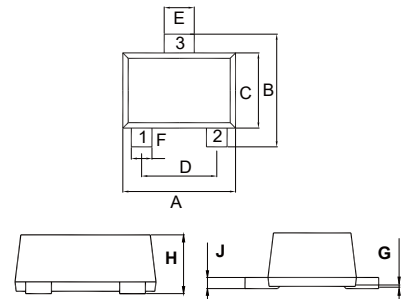


1. GATE
2. SOURCE
3. DRAIN



## N-Channel MOSFET

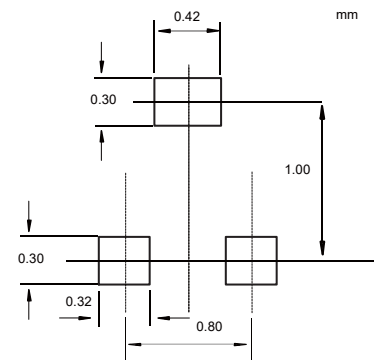
### SOT-723



#### DIMENSIONS

DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.043	0.051	1.10	1.30	
B	0.043	0.051	1.10	1.30	
C	0.028	0.035	0.70	0.90	
D	0.031		0.80		TYP.
E	0.009	0.017	0.22	0.42	
F	0.005	0.013	0.12	0.32	
G	0.000	0.002	0.00	0.05	
H	0.017	0.021	0.43	0.54	
J	0.003	0.006	0.08	0.15	

#### Suggested Solder Pad Layout



**ELECTRICAL CHARACTERISTICS (Ta=25°C unless otherwise specified)**

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>Static Characteristics</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	20			V
Gate-Source Leakage Current	$I_{GSS}$	$V_{DS}=0V, V_{GS}=\pm 10V$			$\pm 10$	$\mu A$
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=20V, V_{GS}=0V$			1	$\mu A$
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.35	0.7	1.1	V
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=4.5V, I_D=500mA$		190	300	m $\Omega$
		$V_{GS}=2.5V, I_D=400mA$		280	400	m $\Omega$
		$V_{GS}=1.8V, I_D=200mA$		480	700	m $\Omega$
Forward transconductance	$g_{FS}$	$V_{DS}=10V, I_D=500mA$		1.6		S
Gate Resistance	$R_g$	f=1 MHz, Open drain		37		$\Omega$
<b>Diode Characteristics</b>						
Continuous Body Diode Current	$I_S$				0.75	A
Diode Forward Voltage	$V_{SD}$	$V_{GS}=0V, I_S=500mA$			1.2	V
Reverse Recovery Time	$t_{rr}$	$I_F=0.5A, di_F/dt=100A/\mu s$		12.5		ns
Reverse Recovery Charge	$Q_{rr}$			0.7		nC
<b>Dynamic Characteristics</b>						
Input Capacitance	$C_{iss}$	$V_{DS}=16V, V_{GS}=0V, f=1MHz$		27		pF
Output Capacitance	$C_{oss}$			9.5		
Reverse Transfer Capacitance	$C_{rss}$			4.6		
Total Gate Charge	$Q_g$	$V_{GS}=4.5V, V_{DS}=10V, I_D=1A$		0.78		nC
Gate-Source Charge	$Q_{gs}$			0.27		
Gate-Drain Charge	$Q_{gd}$			0.18		
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=4.5V, V_{DS}=10V, I_{DS}=0.5A, R_G=10\Omega$		3		ns
Turn-On Rise Time	$t_r$			19		
Turn-Off Delay Time	$t_{d(off)}$			10.8		
Turn-Off Fall Time	$t_f$			24		

Curve Characteristics

Fig.1 - Typical Output Characteristics

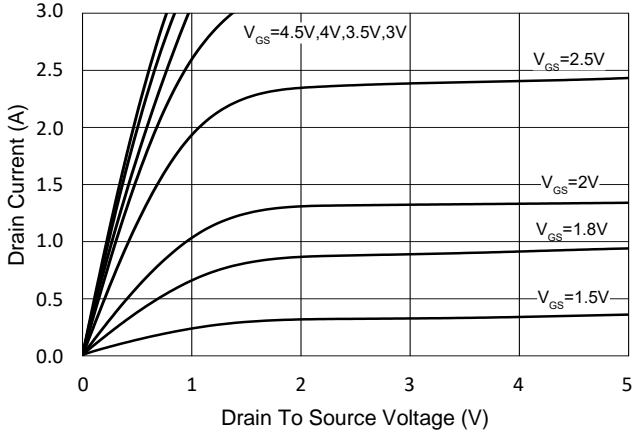


Fig.2 - Transfer Characteristic

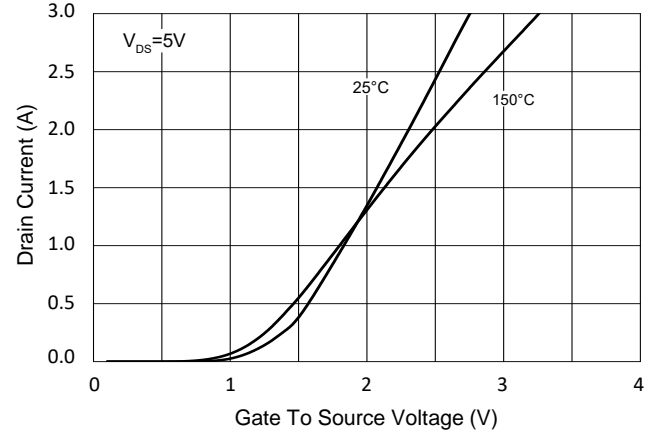


Fig.3 -  $R_{DS(ON)}$  -  $V_{GS}$

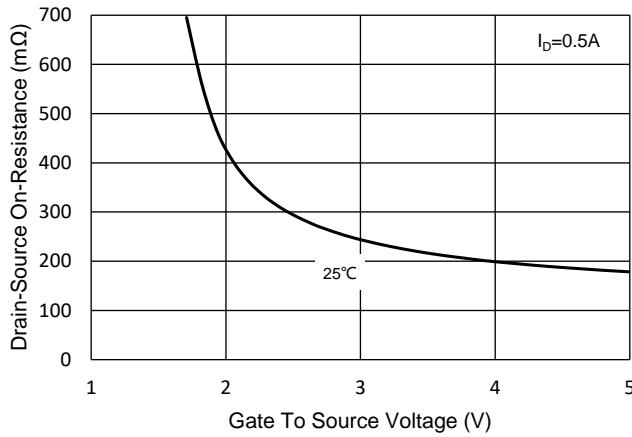


Fig.4 -  $R_{DS(ON)}$  -  $I_D$

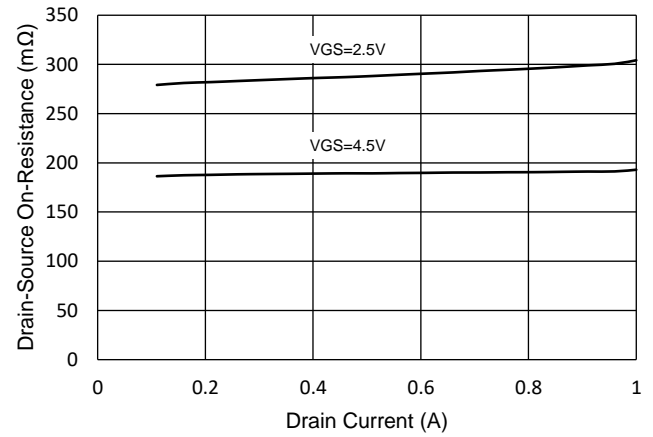


Fig.5 - Capacitance Characteristics

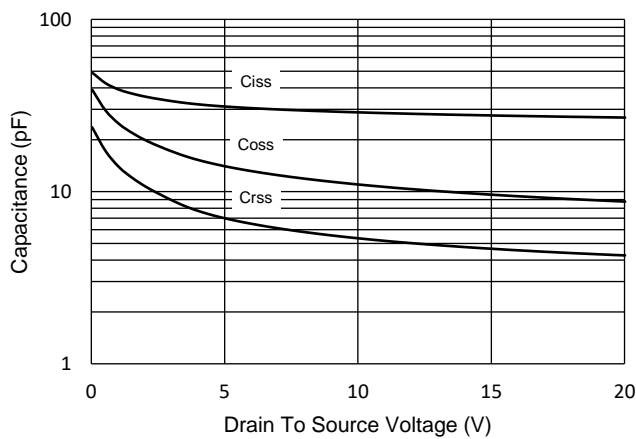
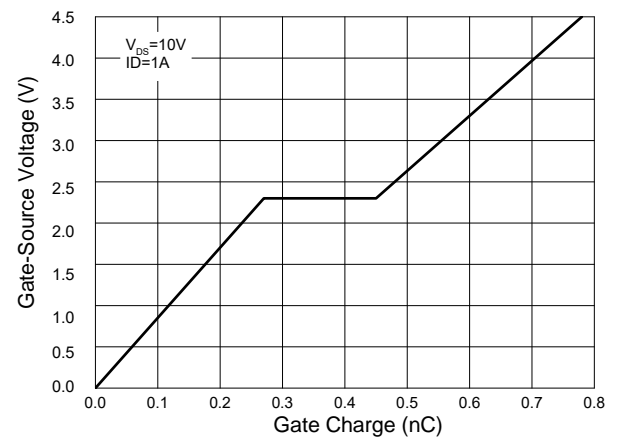


Fig.6 - Gate Charge



Curve Characteristics

Fig.7 - Normalized Threshold Voltage

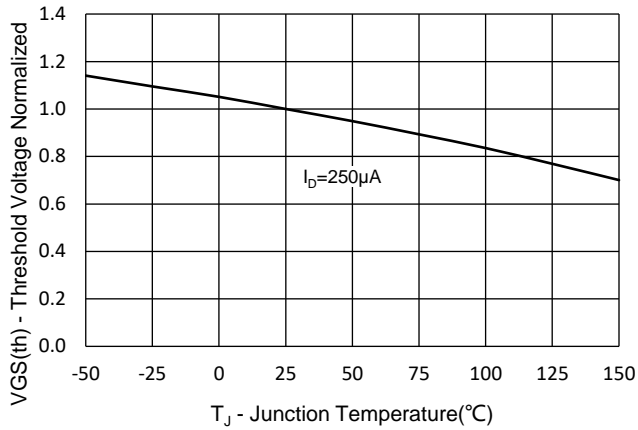


Fig.8 - Normalized On Resistance Characteristics

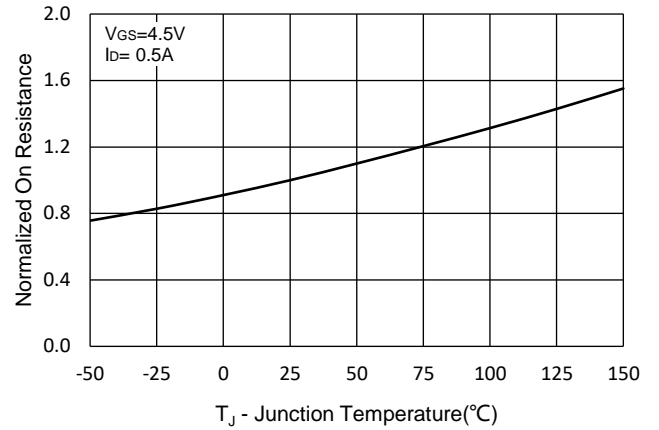


Fig.9 - I<sub>S</sub> - V<sub>SD</sub>

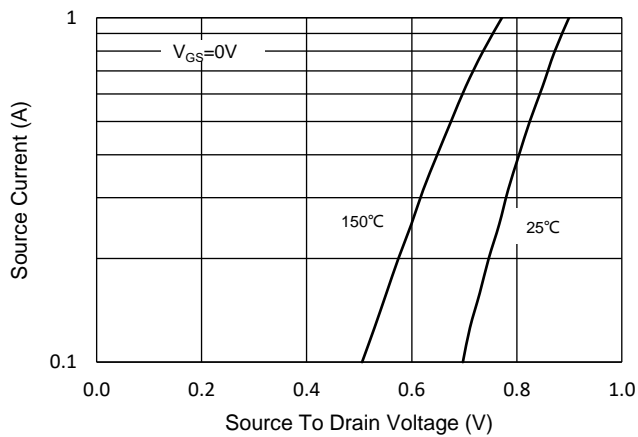


Fig.10 - Drain Current

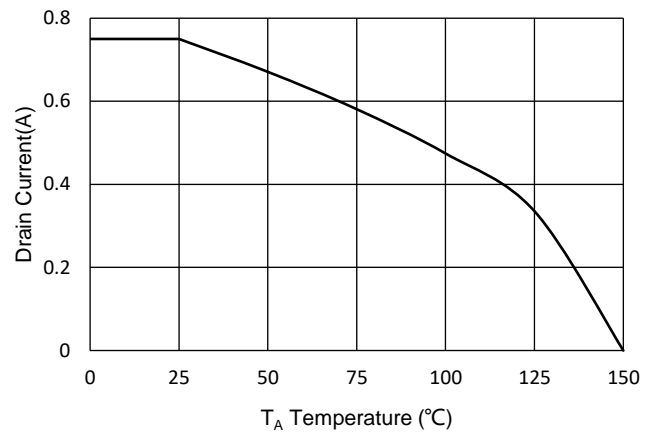
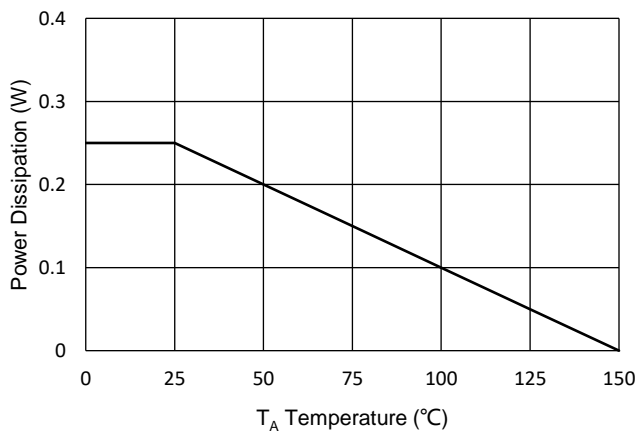


Fig.11 - PD Dissipation



Curve Characteristics

Fig.12 - Safe Operation Area

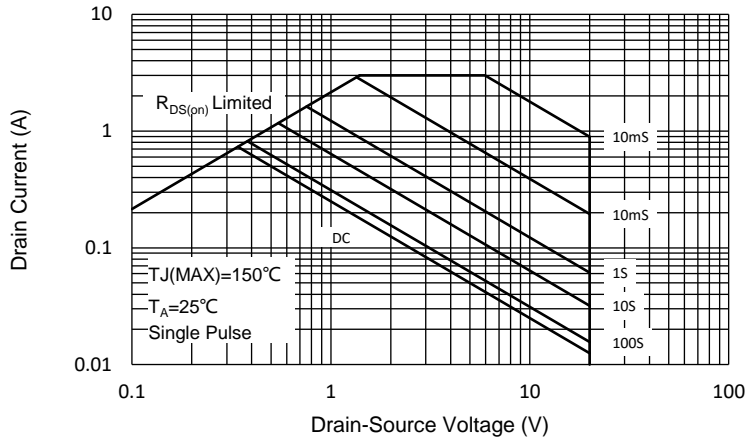
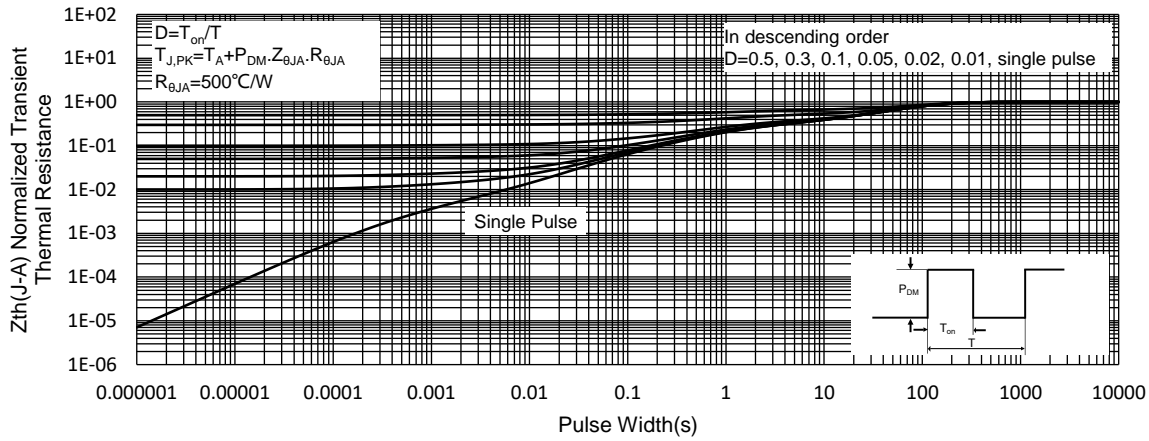


Fig.13 - Normalized Transient Thermal Impedance



## Ordering Information

Device	Packing
Part Number-TP	Tape&Reel:8Kpcs/Reel

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