

## Features

- ESD HBM Class 2
- Trench LV MOSFET Technology
- Moisture Sensitivity Level 1
- 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

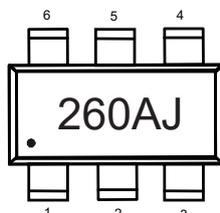
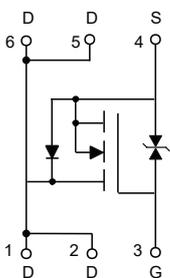
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 120°C/W Junction to Ambient (Note2)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DS}$	30	V
Gate-Source Voltage	$V_{GS}$	$\pm 10$	V
Continuous Drain Current	$I_D$	$T_A=25^\circ\text{C}$	1.51
		$T_A=100^\circ\text{C}$	0.95
Pulsed Drain Current (Note 3)	$I_{DM}$	6.04	A
Total Power Dissipation (Note4)	$P_D$	1.04	W

Note:

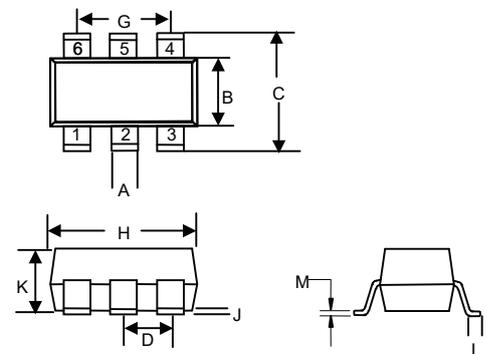
1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. The value of  $R_{\theta JA}$  is measured with the device mounted on 1in<sup>2</sup> FR-4 board with 2oz. Copper, in a still air environment 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



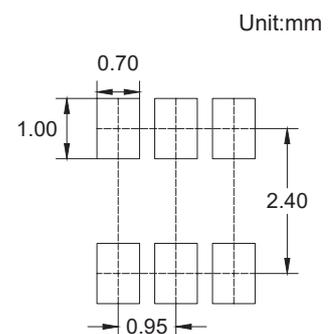
# N-CHANNEL MOSFET

## SOT23-6L



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.012	0.020	0.30	0.50	
B	0.051	0.070	1.30	1.80	
C	0.087	0.126	2.20	3.20	
D	0.037		0.95		TYP.
G	0.074		1.90		TYP.
H	0.106	0.122	2.70	3.10	
J	0.002	0.006	0.05	0.15	
K	0.030	0.051	0.75	1.30	
L	0.012	0.024	0.30	0.60	
M	0.003	0.008	0.08	0.22	

## Suggested Solder Pad Layout



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

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
<b>Static Characteristics</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	30			V
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.45	0.75	1.0	V
Gate-Body Leakage Current	$I_{GSS}$	$V_{GS}=\pm 10V, V_{DS}=0V$			$\pm 10$	$\mu A$
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=30V, V_{GS}=0V$			1	$\mu A$
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=4.5V, I_D=1.4A$		200	260	m $\Omega$
		$V_{GS}=2.5V, I_D=0.7A$		240	400	
		$V_{GS}=1.8V, I_D=0.4A$		330	500	
Gate Resistance	$R_g$	f=1 MHz, Open Drain		5.5		$\Omega$
<b>Diode Characteristics</b>						
Continuous Body Diode Current	$I_S$				1.51	A
Diode Forward Voltage	$V_{SD}$	$V_{GS}=0V, I_S=1.4A$			1.2	V
Reverse Recovery Time	$t_{rr}$	$I_F=1.4A, dI_F/dt=100A/\mu s$		9.2		ns
Reverse Recovery Charge	$Q_{rr}$			2.7		nC
<b>Dynamic Characteristics</b>						
Input Capacitance	$C_{iss}$	$V_{DS}=15V, V_{GS}=0V, f=1MHz$		57.6		pF
Output Capacitance	$C_{oss}$			9.8		
Reverse Transfer Capacitance	$C_{rss}$			5.1		
Total Gate Charge	$Q_g$	$V_{DS}=15V, V_{GS}=4.5V, I_D=1.4A$		1.92		nC
Gate-Source Charge	$Q_{gs}$			0.06		
Gate-Drain Charge	$Q_{gd}$			0.09		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=15V, V_{GS}=4.5V, R_G=3\Omega, I_D=1.4A$		3.52		ns
Turn-On Rise Time	$t_r$			5.55		
Turn-Off Delay Time	$t_{d(off)}$			11		
Turn-Off Fall Time	$t_f$			3.84		

**Curve Characteristics**

Fig. 1 - Typical Output Characteristics

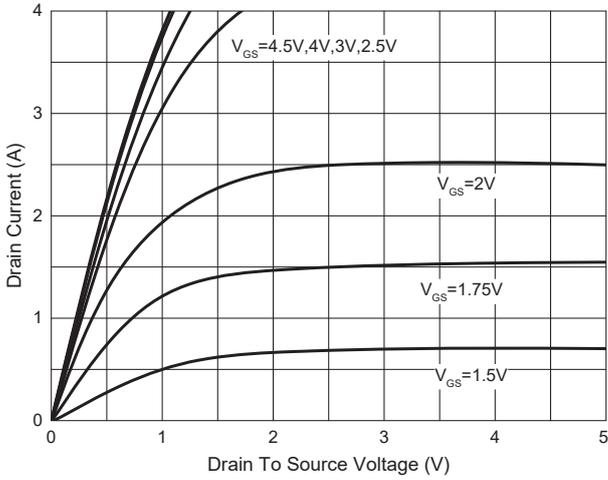


Fig. 2 - Transfer Characteristics

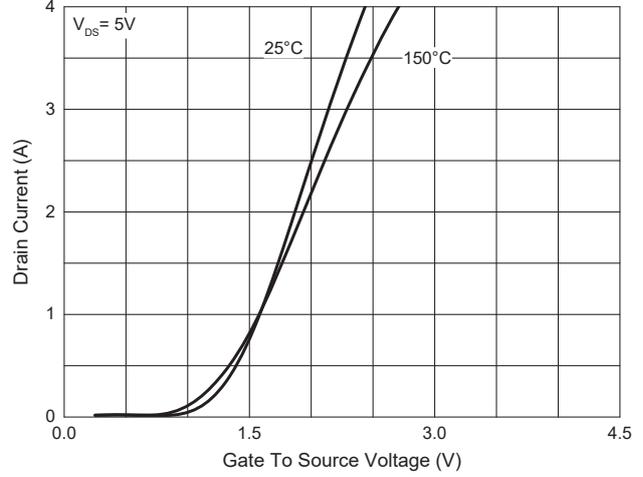


Fig.3- $R_{DS(ON)}$ - $V_{GS}$

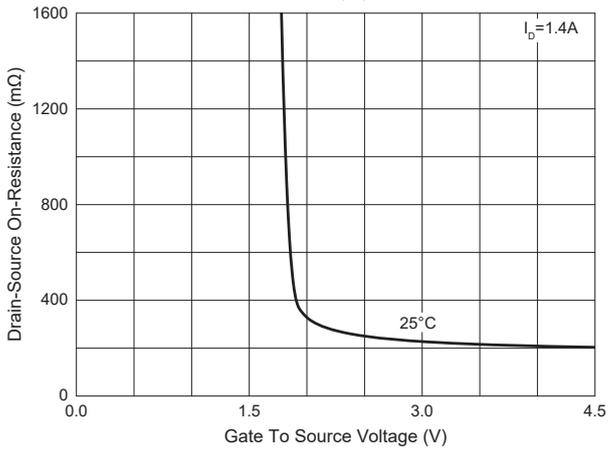


Fig.4- $R_{DS(ON)}$ - $I_D$

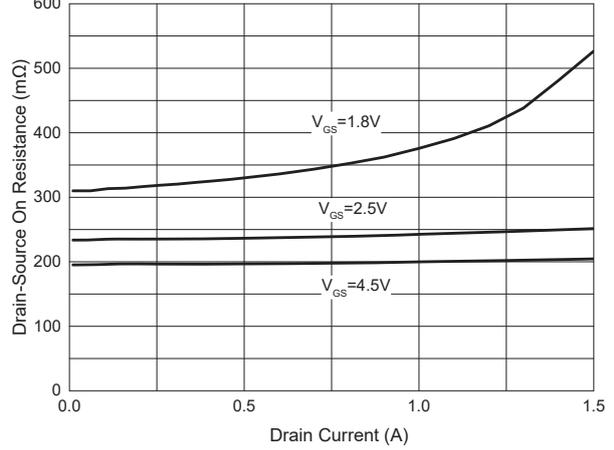


Fig. 5 - Capacitance Characteristics

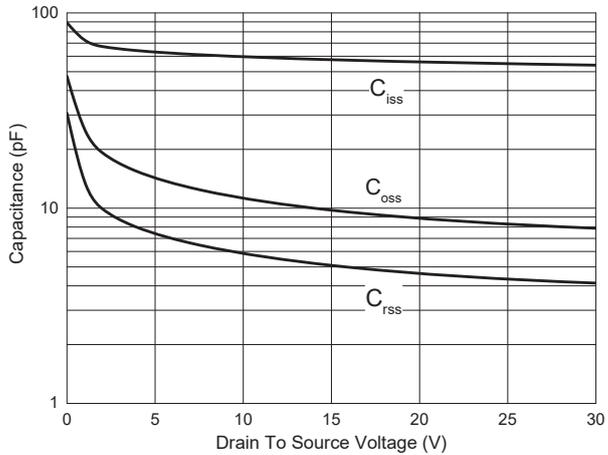
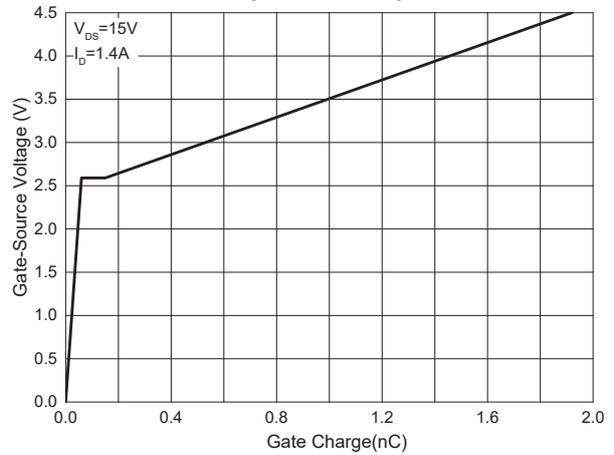


Fig. 6 - Gate Charge



## Curve Characteristics

Fig. 7 - Normalized Threshold Voltage

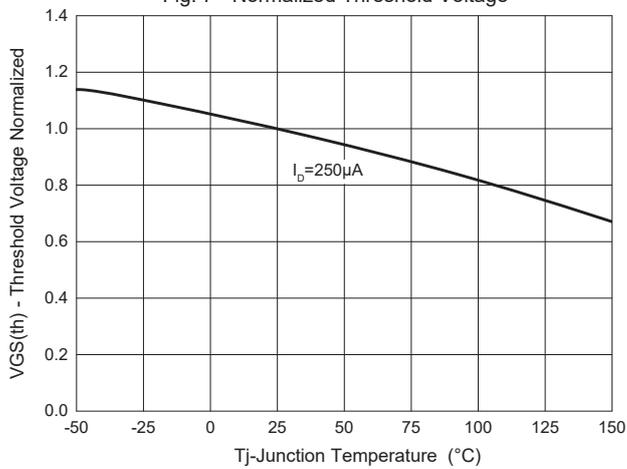


Fig. 8 - Normalized On Resistance Characteristics

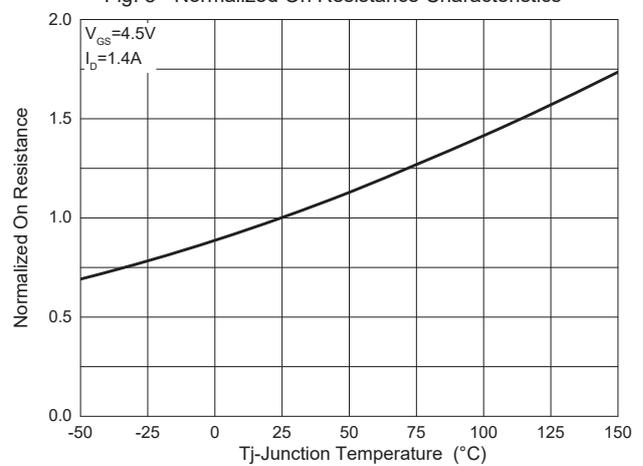


Fig.9-I<sub>S</sub>-V<sub>SD</sub>

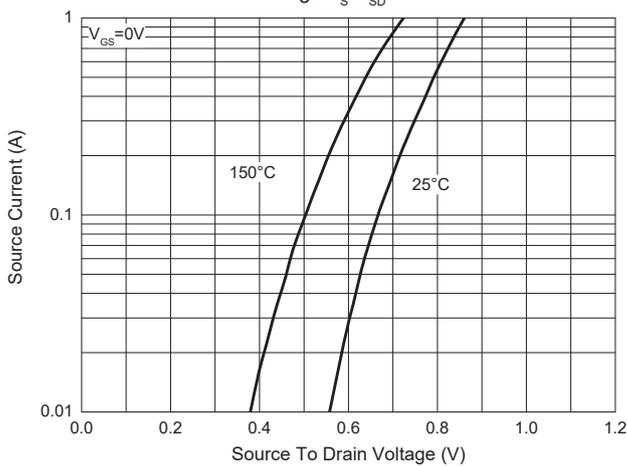


Fig. 10 - Drain Current

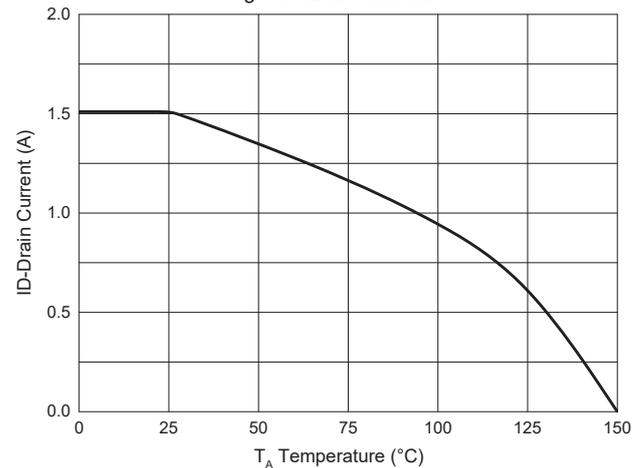
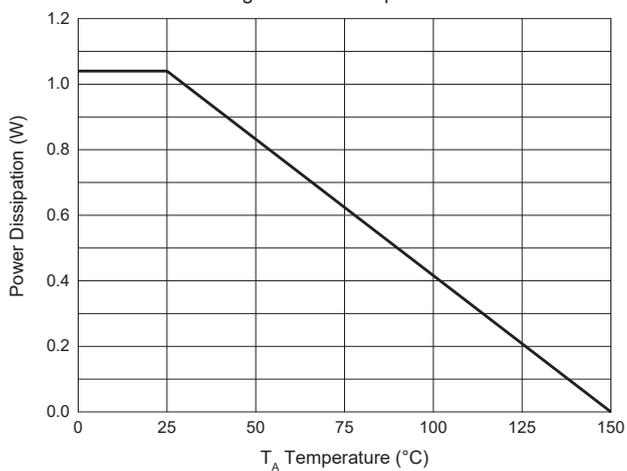


Fig. 11 - PD Dissipation



## Curve Characteristics

Fig. 12 - Safe Operation Area

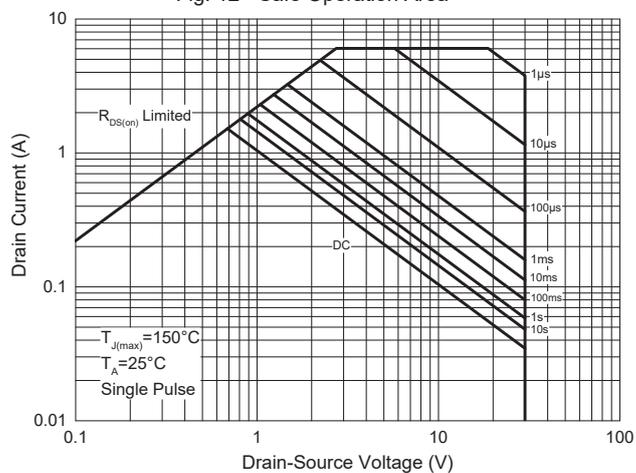
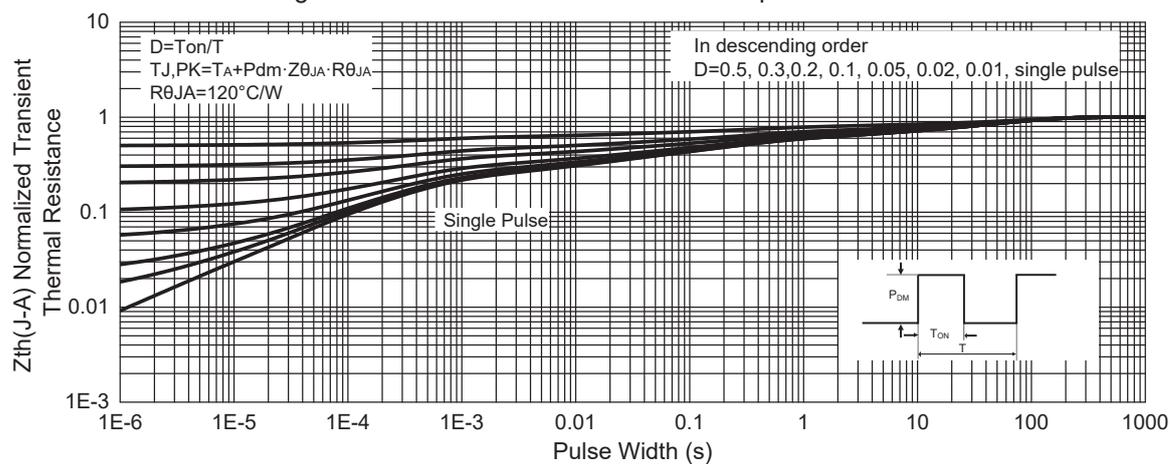


Fig. 13 - Normalized Transient Thermal Impedance



## Ordering Information

Device	Packing
Part Number-TP	Tape&Reel: 3Kpcs/Reel

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