

## Features

- Trench MV MOSFET Technology
- Low Threshold Voltage
- 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)

## N-Channel MOSFET

## Maximum Ratings

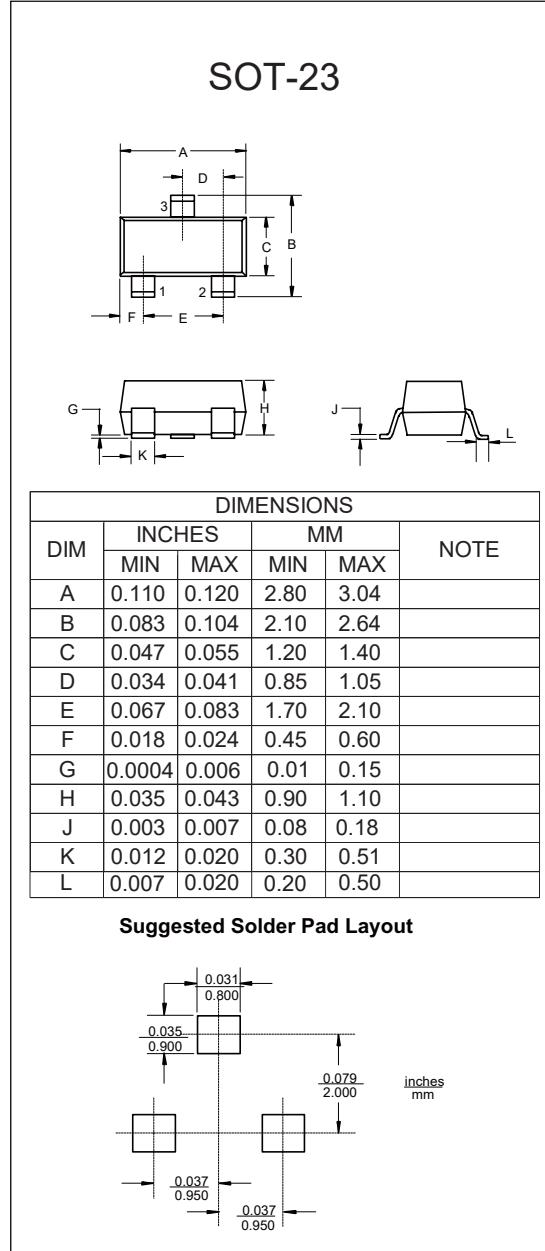
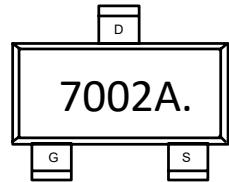
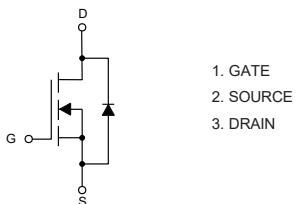
- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature: -55°C to +150°C
- Thermal Resistance: 320°C/W Junction to Ambient<sup>(Note2)</sup>

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V <sub>DS</sub>	60	V
Gate-Source Voltage	V <sub>GS</sub>	±30	V
Continuous Drain Current	I <sub>D</sub>	115	mA
T <sub>A</sub> =100°C	I <sub>D</sub>	73	
Pulsed Drain Current <sup>(Note3)</sup>	I <sub>DM</sub>	460	mA
Total Power Dissipation <sup>(Note4)</sup>	P <sub>D</sub>	390	mW

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<sub>θJA</sub> is measured with the device mounted on the minimum recommended pad size, in a still air environment with T<sub>A</sub>=25°C.
3. Repetitive rating; pulse width limited by max. junction temperature.
4. P<sub>D</sub> is based on max. junction temperature, using junction to ambient thermal resistance.

## Internal Structure and Marking Code

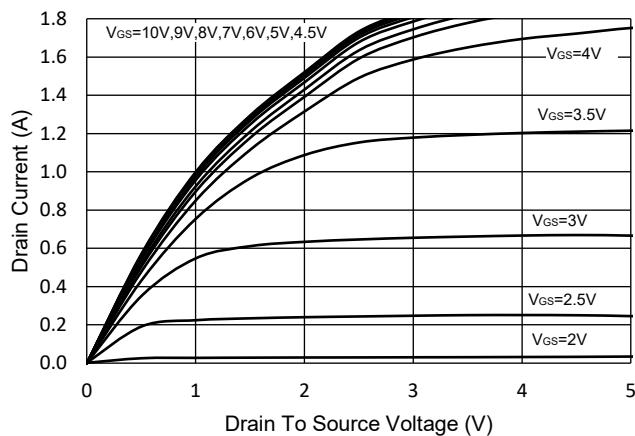


**Electrical Characteristics @ 25°C (Unless Otherwise Specified)**

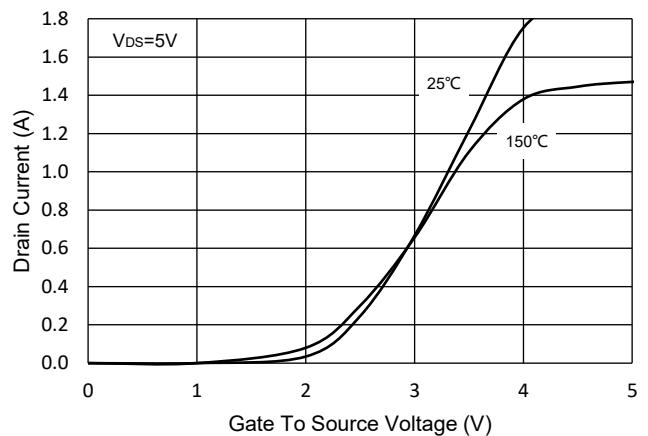
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>Static Characteristics</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	60			V
Gate-Source Leakage Current	$I_{GSS}$	$V_{DS}=0V, V_{GS}=\pm 30V$			$\pm 1$	$\mu A$
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=60V, V_{GS}=0V$			1	$\mu A$
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1.0	1.5	2.5	V
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=500mA$		0.9	3	$\Omega$
		$V_{GS}=4.5V, I_D=200mA$		1	4	
Forward Transconductance	$g_{fs}$	$V_{DS}=10V, I_D=200mA$		300		mS
Gate Resistance	$R_g$	F=1 MHz, Open drain		6		$\Omega$
<b>Diode Characteristics</b>						
Continuous Body Diode Current	$I_S$				115	mA
Diode Forward Voltage	$V_{SD}$	$V_{GS}=0V, I_S=115mA$			1.0	V
Reverse Recovery Time	$t_{rr}$	$I_F=0.34A, dI_F/dt=100A/\mu s$		7		ns
Reverse Recovery Charge	$Q_{rr}$			8		nC
<b>Dynamic Characteristics</b>						
Input Capacitance	$C_{iss}$	$V_{DS}=25V, V_{GS}=0V, f=1MHz$		34		$pF$
Output Capacitance	$C_{oss}$			5		
Reverse Transfer Capacitance	$C_{rss}$			4		
Total Gate Charge	$Q_g$	$V_{DS}=25V, V_{GS}=10V, I_D=0.35A$		1.6		$nC$
Gate-Source Charge	$Q_{gs}$			0.47		
Gate-Drain Charge	$Q_{gd}$			0.25		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=30V, V_{GS}=10V, R_{GEN}=25\Omega, I_{DS}=340mA$		0.8		$ns$
Turn-On Rise Time	$t_r$			15		
Turn-Off Delay Time	$t_{d(off)}$			4		
Turn-Off Fall Time	$t_f$			33		

## Curve Characteristics

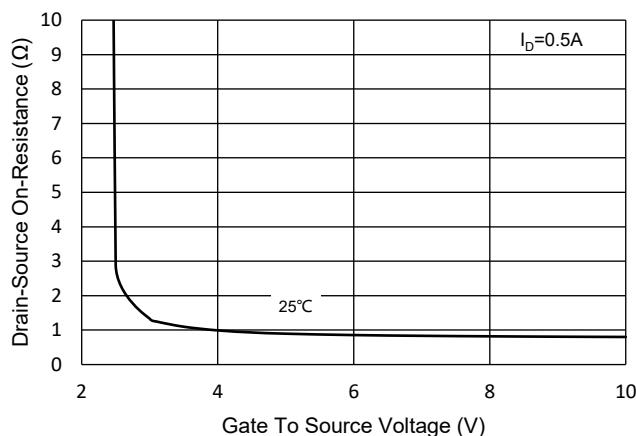
**Fig.1 - Typical Output Characteristics**



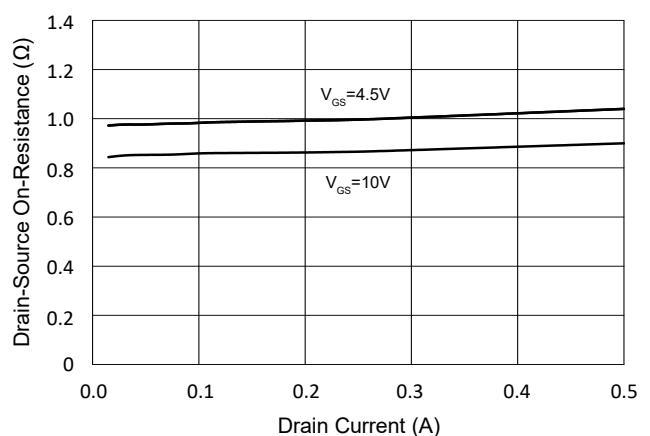
**Fig.2 - Transfer Characteristic**



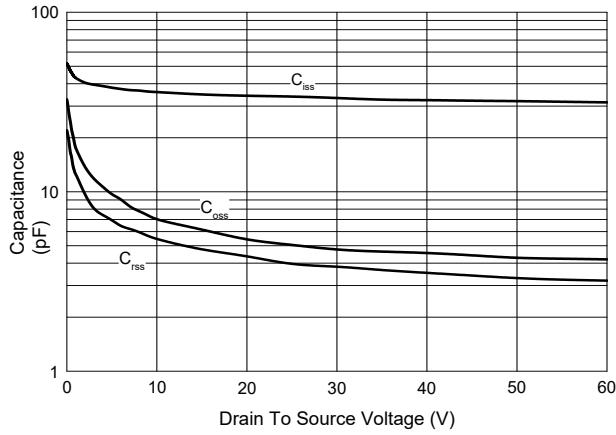
**Fig.3 -  $R_{DS(ON)}$  -  $V_{GS}$**



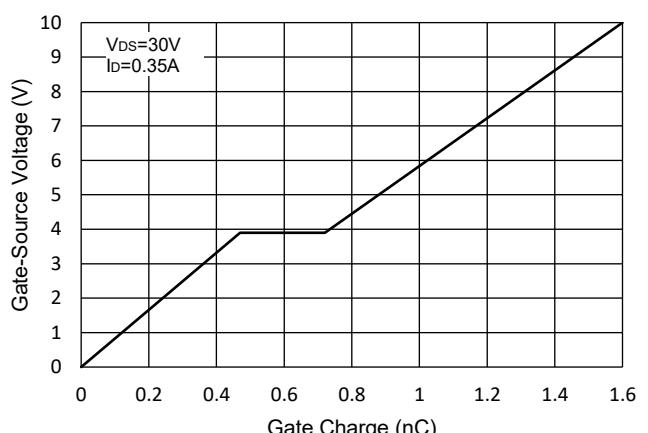
**Fig.4 -  $R_{DS(ON)}$  -  $I_D$**



**Fig.5 - Capacitance Characteristics**



**Fig.6 - Gate Charge**



## Curve Characteristics

Fig.7 - Normalized Threshold Voltage

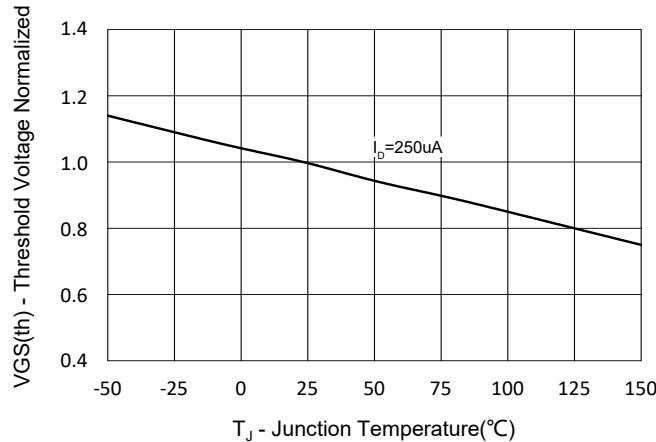


Fig.8 - Normalized On Resistance Characteristics

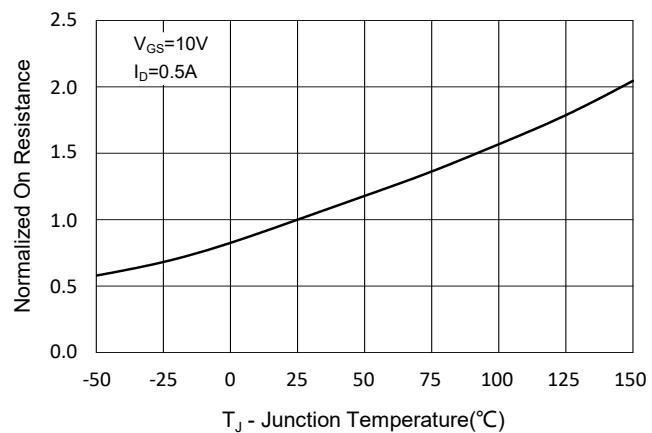


Fig.9 - I<sub>S</sub> - V<sub>SD</sub>

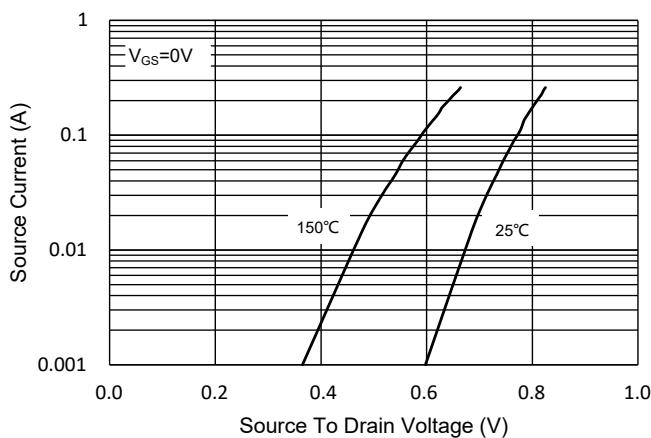


Fig.10 - Drain Current

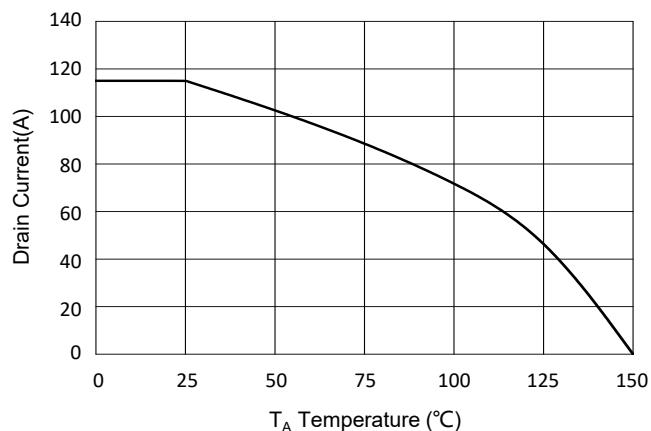
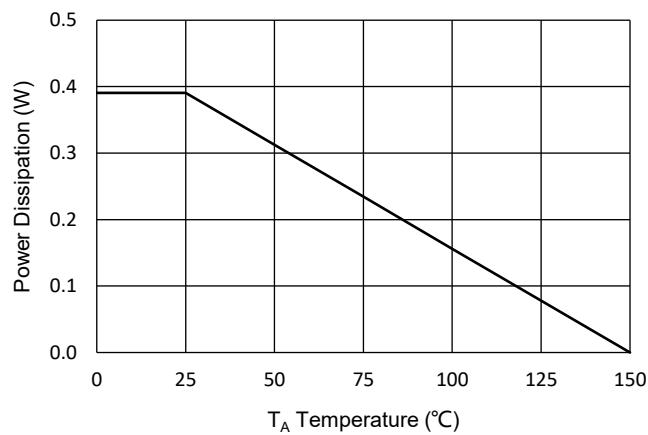


Fig.11 - PD Dissipation



## Curve Characteristics

Fig.12 - Safe Operation Area

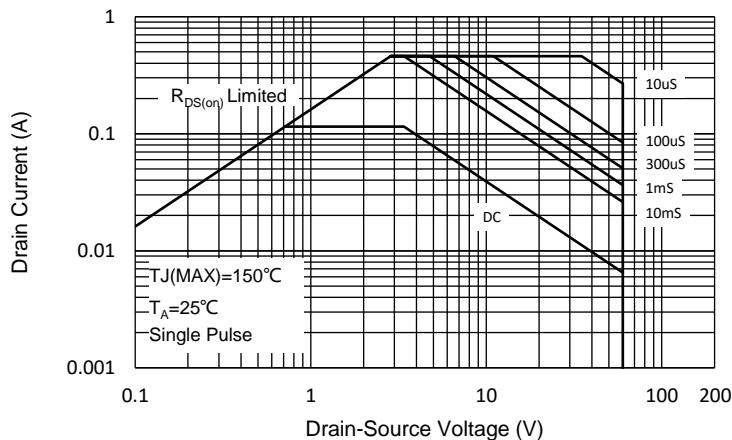
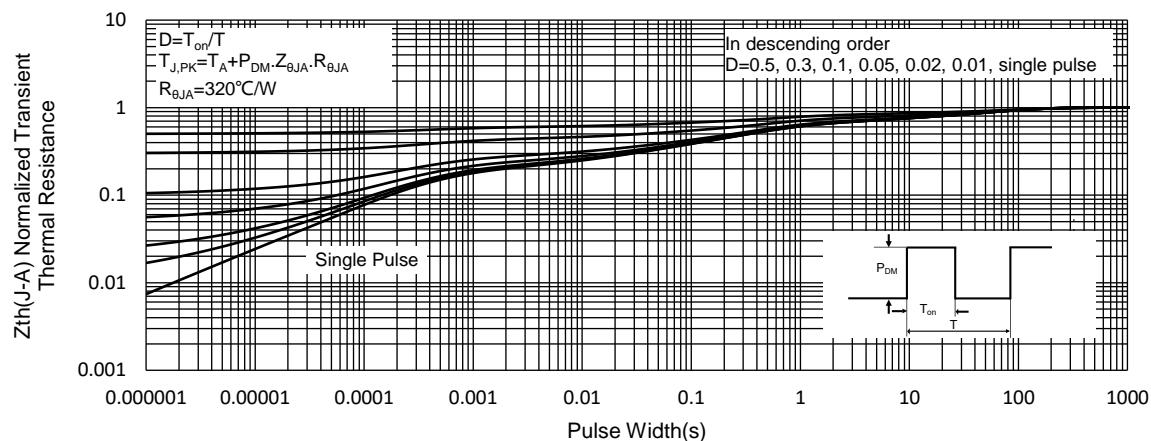


Fig.13 - Normalized Transient Thermal Impedance



## Ordering Information

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

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