

## Features

- Rugged and Reliable
- Lead Free Product is Acquired
- High Dense Cell Design for Extremely Low  $R_{DS(ON)}$
- Epoxy Meets UL 94 V-0 Flammability Rating
- Moisture Sensitivity Level 1
- Halogen Free. "Green" Device (Note 1)
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

## N-Channel Enhancement Mode Field Effect Transistor

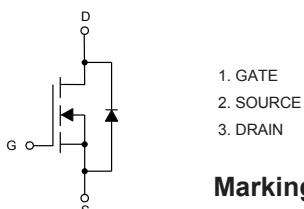
## Maximum Ratings

- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 100°C/W Junction to Ambient

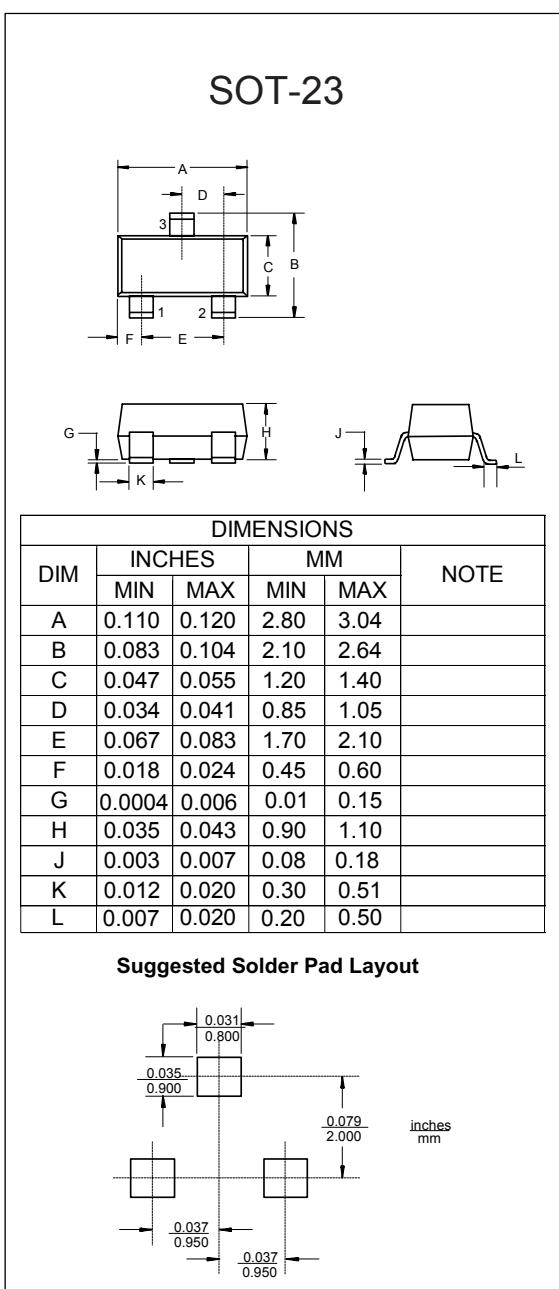
Parameter	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DS}$	20	V
Gate-Source Voltage	$V_{GS}$	$\pm 8$	V
Drain Current-Continuous	$I_D$	3.0	A
Drain Current-Pulsed <sup>(Note 2)</sup>	$I_{DM}$	10	A
Power Dissipation	$P_D$	1.25	W

Note: 1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

## Internal Structure



Marking: S2



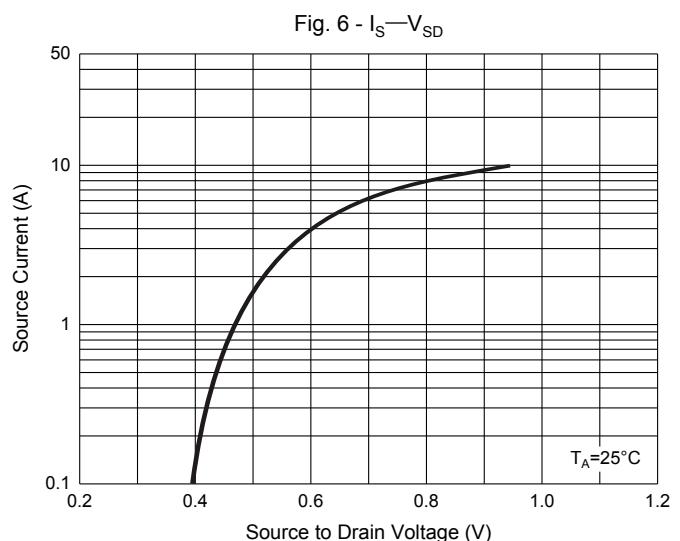
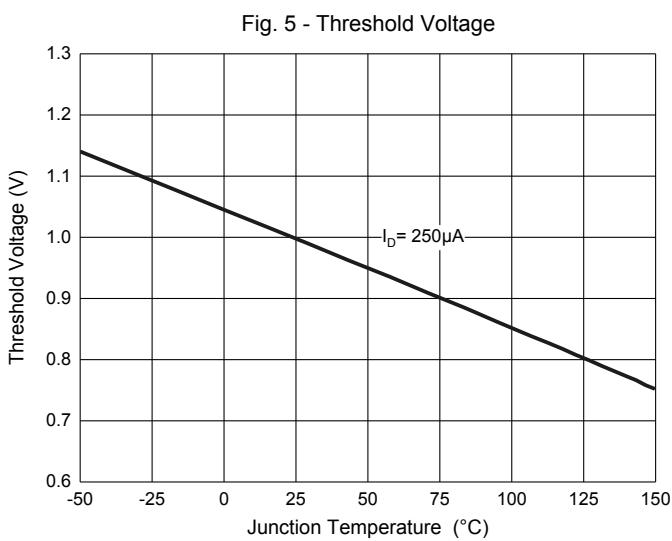
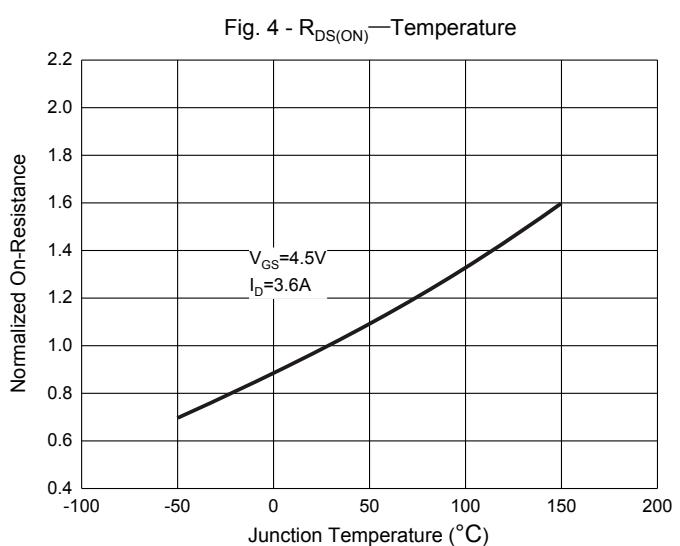
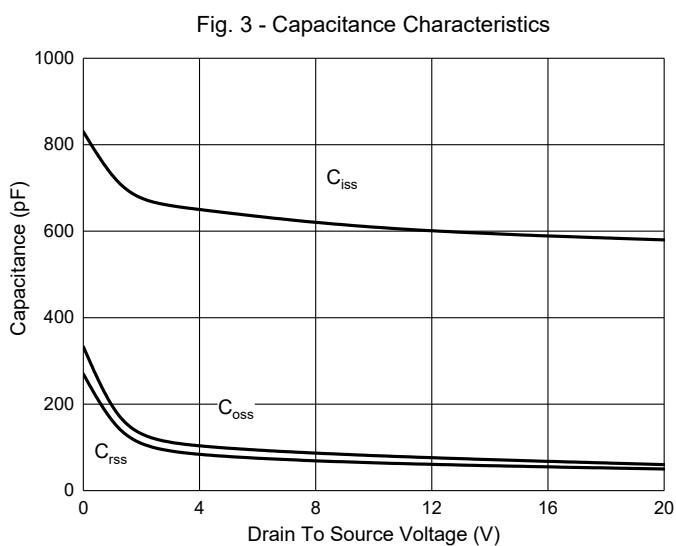
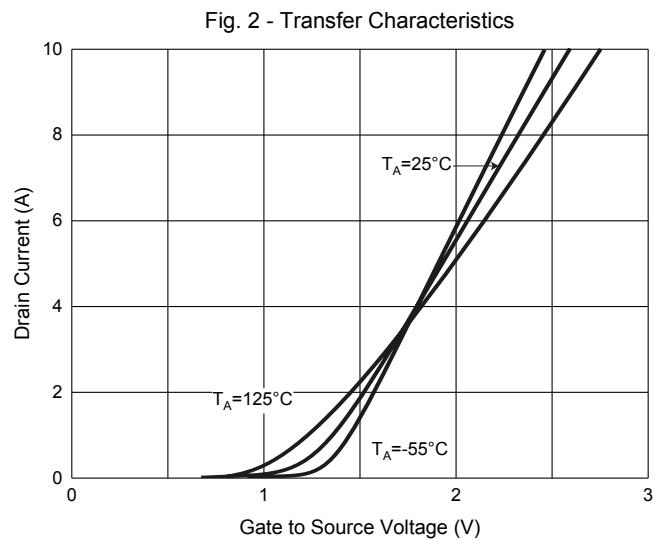
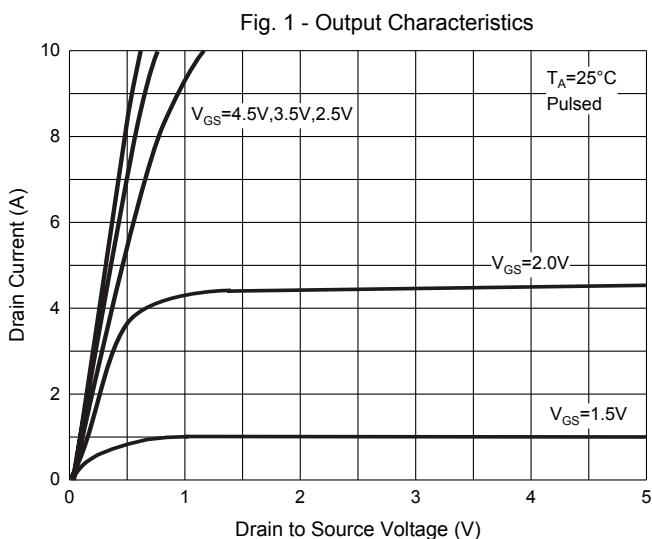
**ELECTRICAL CHARACTERISTICS (Ta=25°C unless otherwise specified)**

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
<b>Static Characteristics</b>						
Drain-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> =0V, I <sub>D</sub> =10µA	20			V
Gate-Threshold Voltage <sup>(Note 3)</sup>	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =50µA	0.65		1.2	V
Gate-Body Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =± 8V, V <sub>DS</sub> =0V			±100	nA
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =20V, V <sub>GS</sub> =0V			1	µA
Drain-Source On-Resistance <sup>(Note 4)</sup>	R <sub>DS(on)</sub>	V <sub>GS</sub> =4.5V, I <sub>D</sub> =4.3A		21	27	mΩ
		V <sub>GS</sub> =2.5V, I <sub>D</sub> =3.0A		28	37	
Forward Transconductance <sup>(Note 4)</sup>	g <sub>FS</sub>	V <sub>DS</sub> =5V, I <sub>D</sub> =3.6A		8.5		S
<b>Dynamic Characteristics<sup>(Note 5)</sup></b>						
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =10V, V <sub>GS</sub> =0V, f=1MHz		602		pF
Output Capacitance	C <sub>oss</sub>			79		
Reverse Transfer Capacitance	C <sub>rss</sub>			62		
<b>Switching Characteristics<sup>(Note 5)</sup></b>						
Turn-On Delay Time	t <sub>d(on)</sub>	V <sub>DD</sub> =10V, V <sub>GS</sub> =4.5V, I <sub>D</sub> =3.6A, R <sub>GEN</sub> =6Ω		8		ns
Turn-On Rise Time	t <sub>r</sub>			58		
Turn-Off Delay Time	t <sub>d(off)</sub>			20		
Turn-Off Fall Time	t <sub>f</sub>			68		
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> =10V, V <sub>GS</sub> =4.5V, I <sub>D</sub> =3.6A		6	10	nC
Gate-Source Charge	Q <sub>gs</sub>			1.6		
Gate-Drain Charge	Q <sub>gd</sub>			1.5		
<b>Drain-Source Diode Characteristics and Maximum Ratings</b>						
Diode Forward Voltage <sup>(Note 4)</sup>	V <sub>SD</sub>	V <sub>GS</sub> =0V, I <sub>S</sub> =0.94A			1.2	V
Drain-Source Diode Forward Current <sup>(Note 3)</sup>	I <sub>S</sub>				0.94	A

Notes:

2. Repetitive Rating : Pulse Width limited By Maximum Junction Temperature.
3. Surface Mounted on FR4 Board, t < 10 sec.
4. Pulse Test : Pulse Width < 300µs, Duty Cycle < 2%.
5. Guaranteed By Design, Not Subject to Production Testing.

## Curve Characteristics



## Ordering Information

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

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