Features

- Voltage Controlled Small Signal Switch
- Surface Mount Package
- 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: 357°C/W Junction to Ambient(Note 2)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	50	V
Gate-Source Volltage		V_{GS}	±20	V
Continuous Drain Current	T_A=25°C	I_D	0.22	A
	T_A=100°C		0.14	
Pulsed Drain Current(Note3)		I_{DM}	0.88	A
Total Power Dissipation(Note4)		P_D	0.35	W

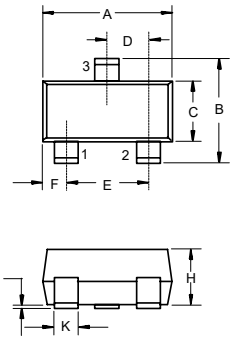
Note:

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 RθJA is measured with the device mounted on the minimum recommend pad size, in the still air environment with TA =25℃.

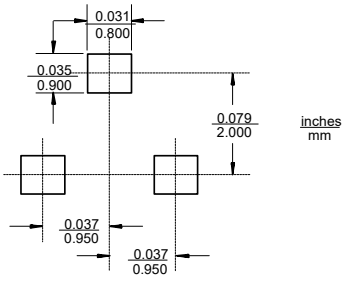
3. Repetitive rating; pulse width limited by max. junction temperature.
4. P_D is based on max. junction temperature, using junction-ambient thermal resistance.

SOT-23

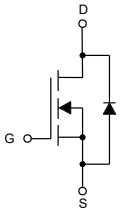


DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.110	0.120	2.80	3.04	
B	0.083	0.104	2.10	2.64	
C	0.047	0.055	1.20	1.40	
D	0.034	0.041	0.85	1.05	
E	0.067	0.083	1.70	2.10	
F	0.018	0.024	0.45	0.60	
G	0.0004	0.006	0.01	0.15	
H	0.035	0.043	0.90	1.10	
J	0.003	0.007	0.08	0.18	
K	0.012	0.020	0.30	0.51	
L	0.007	0.020	0.20	0.50	

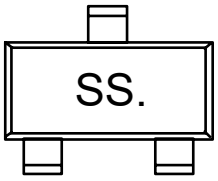
Suggested Solder Pad Layout



Internal Structure and Marking Code



1. GATE
2. SOURCE
3. DRAIN



ELECTRICAL CHARACTERISTICS (Ta=25℃ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=250μA	50			V
Gate-Threshold Voltage(Note5)	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=1mA	0.8	1.1	1.5	V
Gate-Body Leakage Current	I_{GSS}	V_{GS}=±20V, V_{DS}=0V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=50V, V_{GS}=0V			100	nA
Drain-Source On-Resistance(Note5)	$R_{DS(on)}$	V_{GS}=10V, I_D=0.3A		0.9	2.5	Ω
		V_{GS}=4.5V, I_D=0.2A		1.05	3	
Forward Transconductance(Note5)	g_{FS}	V_{DS}=10V, I_D=0.22A	120			mS
Gate Resistance	R_g	f=1 MHz, Open drain		4.2		Ω
Diode Characteristics						
Continuous Body Diode Current	I_S				0.22	A
Diode Forward Voltage(Note5)	V_{SD}	V_{GS}=0V, I_S=0.44A			1.4	V
Reverse Recovery Time	t_{rr}	I_F=300mA, dI_F/dt=100A/μs		12.2		ns
Reverse Recovery Charge	Q_{rr}			2.6		nC
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=25V,V_{GS}=0V,f=1MHz		27	60	pF
Output Capacitance	C_{oss}			3	10	
Reverse Transfer Capacitance	C_{rss}			2	6	
Total Gate Charge	Q_g	V_{DS}=25V,V_{GS}=10V,I_D=0.3A		1.65		nC
Gate-Source Charge	Q_{gs}			0.24		
Gate-Drain Charge	Q_{gd}			0.4		
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=30V, V_{GS}=10V,R_G=6Ω, I_D=0.29A			5	ns
Turn-On Rise Time	t_r				18	
Turn-Off Delay Time	$t_{d(off)}$				36	
Turn-Off Fall Time	t_f				73	

Note:

5.Pulse Test : Pulse Width=300μs, Duty Cycle≤2%.

Curve Characteristics

Fig. 1 - Typical Output Characteristics

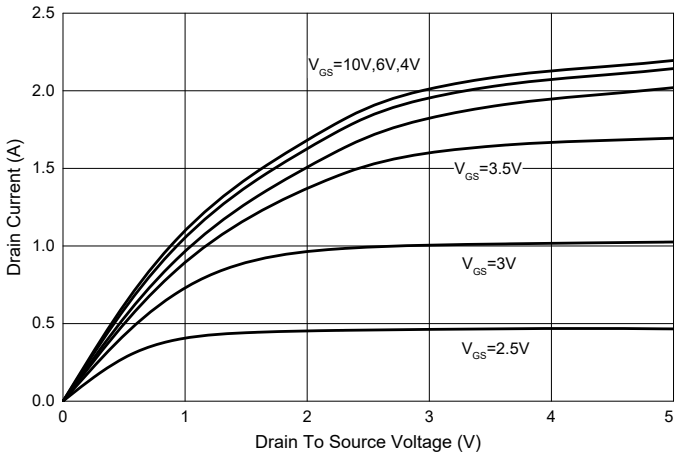


Fig. 2 - Transfer Characteristics

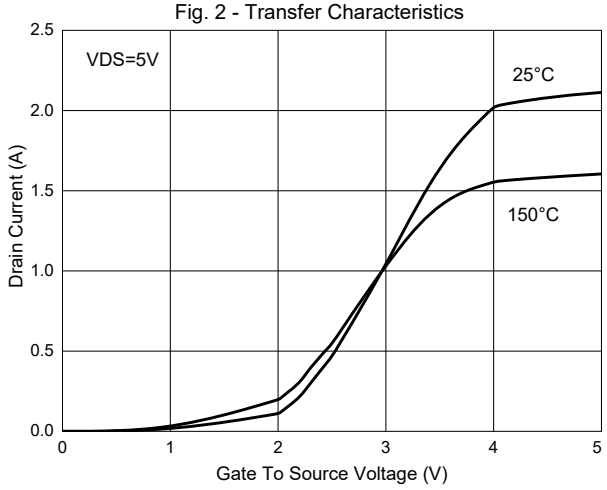


Fig. 3 - $R_{DS(ON)}$—I_D

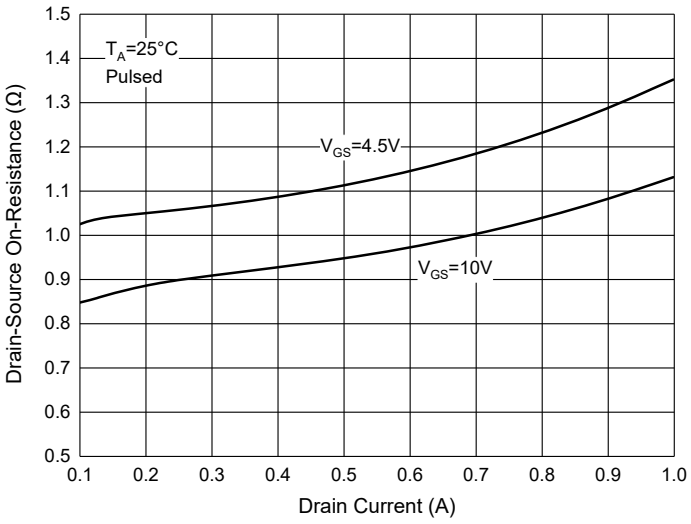


Fig. 4 - $R_{DS(ON)}$—V_{GS}

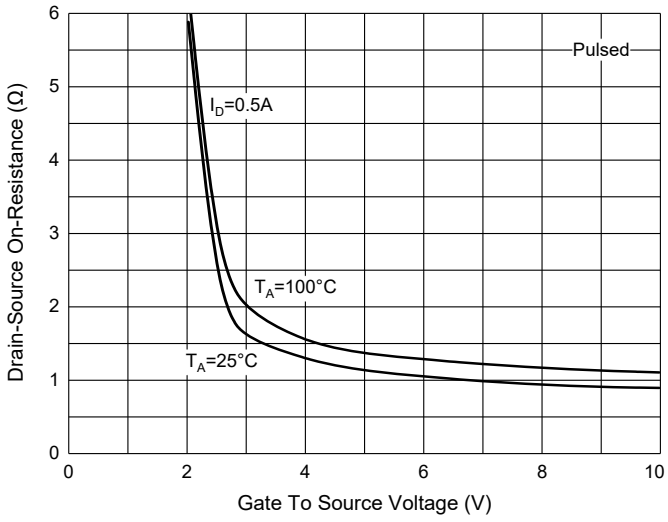


Fig. 5 - I_S—V_{SD}

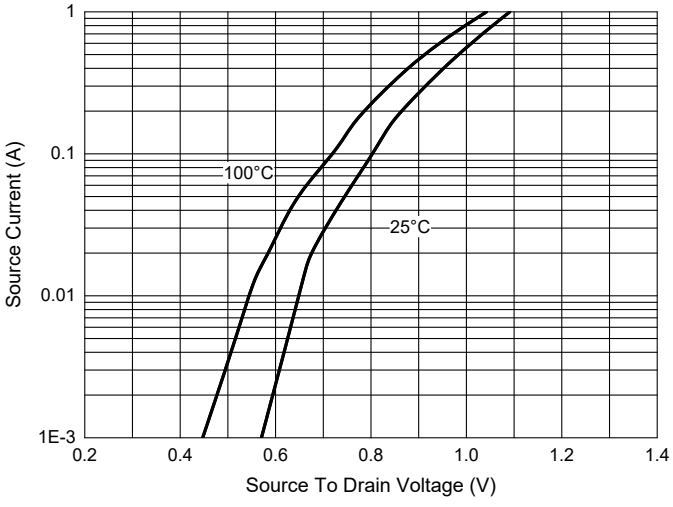


Fig. 6 - Threshold Voltage

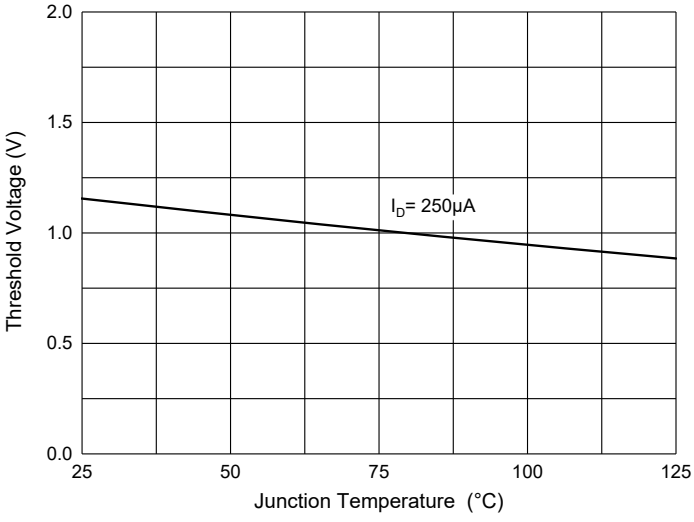


Fig. 7 - Normalized On Resistance Characteristics

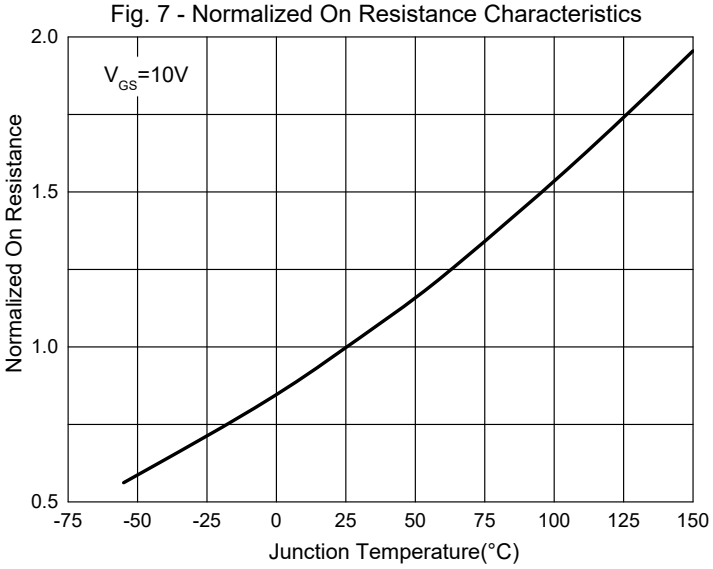


Fig. 8 - Gate Charge

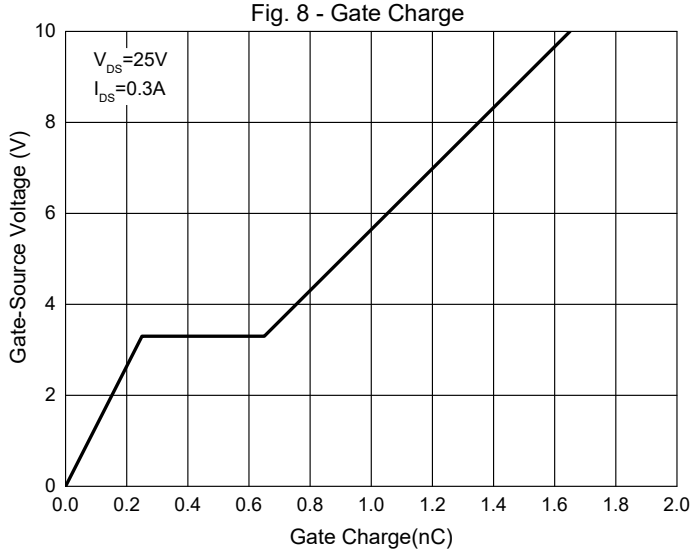


Fig. 9 - Capacitance Characteristics

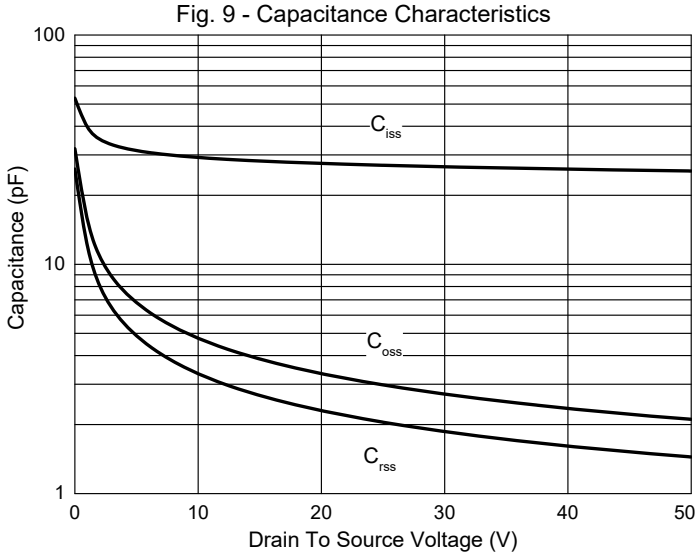


Fig. 10 - Current dissipation

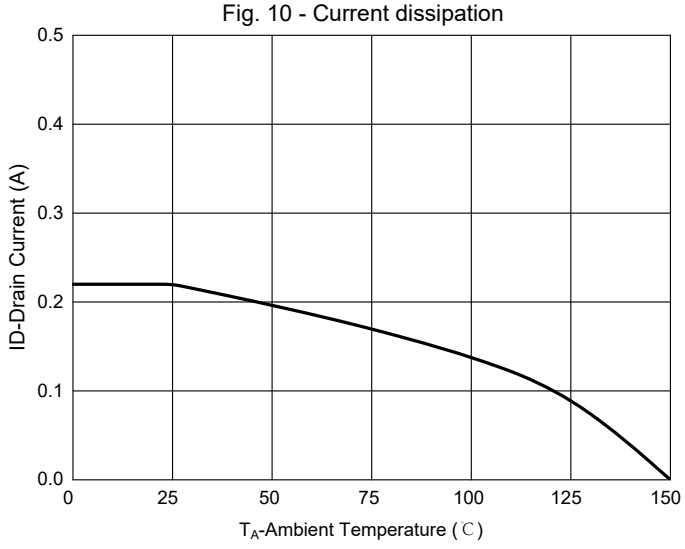


Fig. 11 - PD—TJ

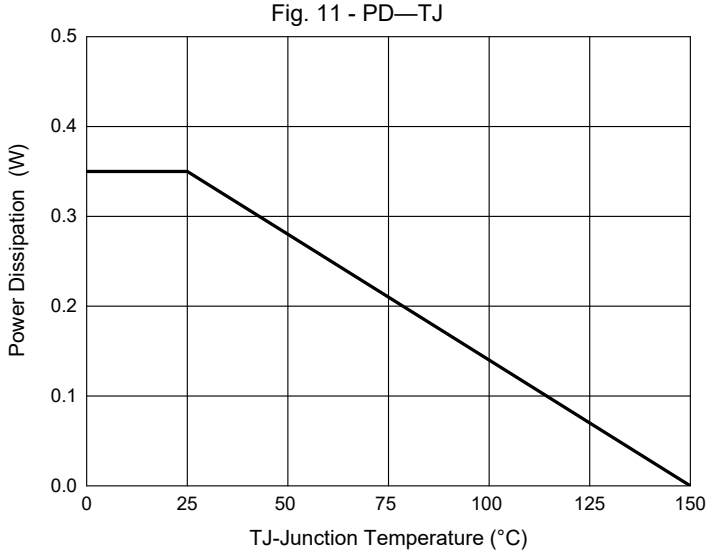


Fig. 12 - Safe Operation Area

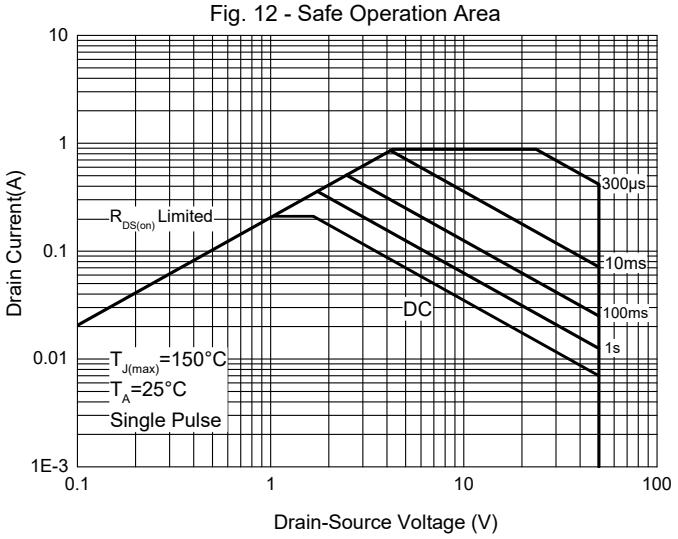
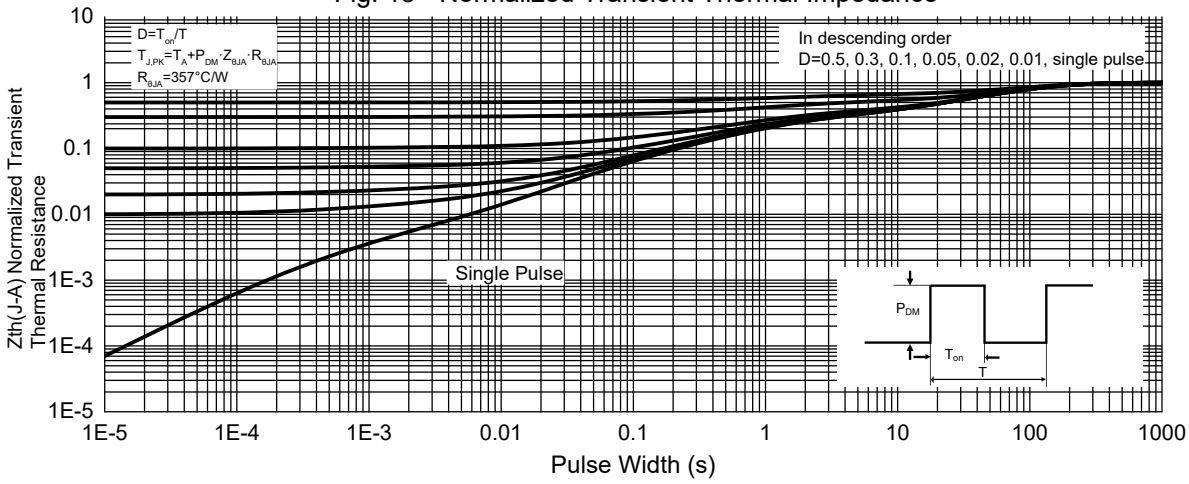


Fig. 13 - Normalized Transient Thermal Impedance



Ordering Information

Device	Packing
Part Number-TP	Tape&Reel: 3Kpcs/Reel
Part Number-13P	Tape&Reel: 10Kpcs/Reel

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