

Features

- Trench LV MOSFET Technology
- ESD HBM Class 2
- 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

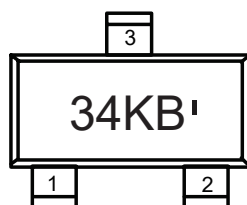
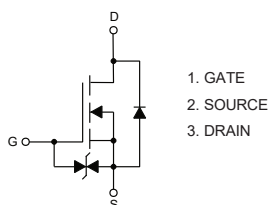
- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Maximum Thermal Resistance: 575°C/W Junction to Ambient (Note2)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V _{DS}	20	V
Gate-Source Voltlage		V _{GS}	±12	V
Continuous Drain Current	T _A =25°C	I _D	0.69	A
	T _A =100°C		0.43	
Pulsed Drain Current ^(Note3)		I _{DM}	2.76	A
Total Power Dissipation ^(Note4)		P _D	0.22	W

Note:

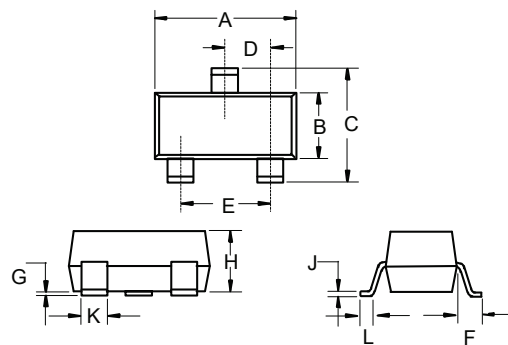
1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. The value of $R_{\theta JA}$ is measured with the device mounted on 1 in² FR-4 board with 2 oz copper, in a still air environment with $T_A=25^{\circ}\text{C}$.
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



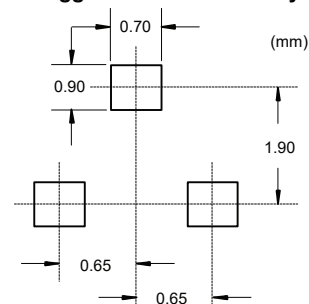
N-Channel MOSFET

SOT-323S



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.071	0.087	1.80	2.20	
B	0.045	0.053	1.15	1.35	
C	0.078	0.087	2.00	2.20	
D	0.026		0.65		TYP.
E	0.047	0.055	1.20	1.40	
F	0.021		0.525		TYP.
G	0.000	0.004	0.00	0.10	
H	0.035	0.039	0.90	1.00	
J	0.004	0.010	0.10	0.25	
K	0.006	0.016	0.15	0.40	
L	0.010	0.018	0.26	0.46	

Suggested Solder Pad Layout



ELECTRICAL CHARACTERISTICS (Ta=25°C 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	20			V
Gate-Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	0.4	0.7	1.1	V
Gate-Body Leakage Current	I _{GSS}	V _{GS} =±10V, V _{DS} =0V			±10	μA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =20V, V _{GS} =0V			1	μA
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =4.5V, I _D =500mA		200	300	mΩ
		V _{GS} =2.5V, I _D =450mA		287	400	
		V _{GS} =1.8V, I _D =200mA		438	700	
Forward Transconductance	g _{FS}	V _{DS} =5V, I _D =0.5A		1.6		S
Gate Resistance	R _g	f=1 MHz, Open drain		11		Ω
Diode Characteristics						
Continuous Body Diode Current	I _S				0.69	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/μs		15.5		ns
Reverse Recovery Charge	Q _{rr}			4.0		nC
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =10V, V _{GS} =0V, f=1MHz		29		pF
Output Capacitance	C _{oss}			11		
Reverse Transfer Capacitance	C _{rss}			5		
Total Gate Charge	Q _g	V _{DS} =10V, V _{GS} =4.5V, I _D =0.5A		0.47		nC
Gate-Source Charge	Q _{gs}			0.04		
Gate-Drain Charge	Q _{gd}			0.09		
Turn-On Delay Time	t _{d(on)}	V _{DD} =10V, V _{GS} =4.5V, R _G =3Ω, I _D =0.5A		3.8		ns
Turn-On Rise Time	t _r			4.2		
Turn-Off Delay Time	t _{d(off)}			12		
Turn-Off Fall Time	t _f			4.2		

Curve Characteristics

Fig. 1 - Typical Output Characteristics

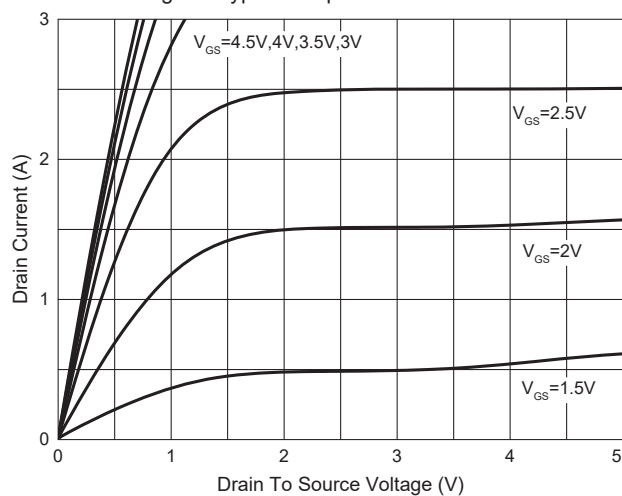


Fig. 2 - Transfer Characteristics

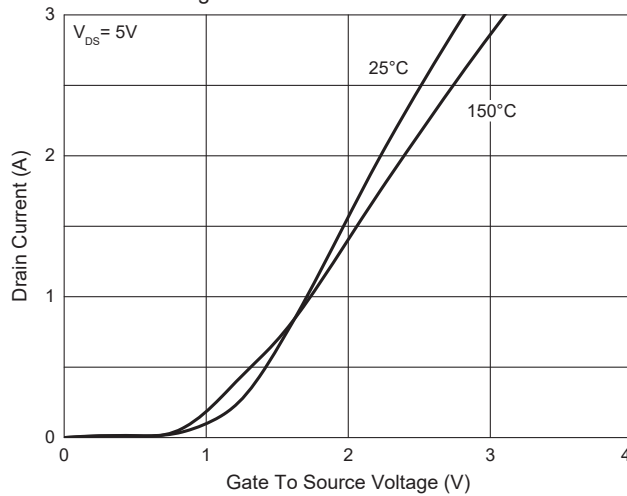


Fig.3- $R_{DS(ON)}$ - V_{GS}

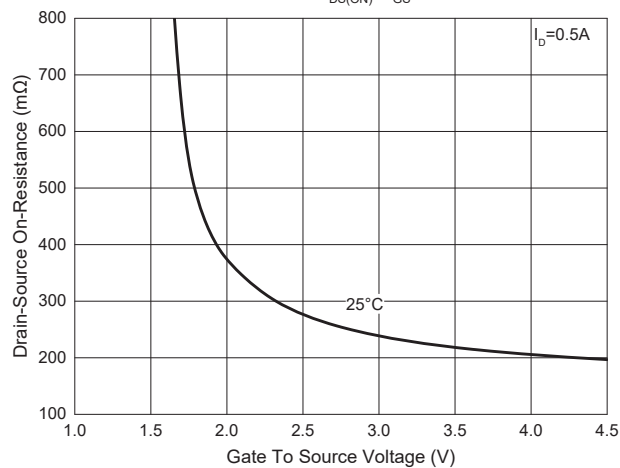


Fig.4- $R_{DS(ON)}$ - I_D

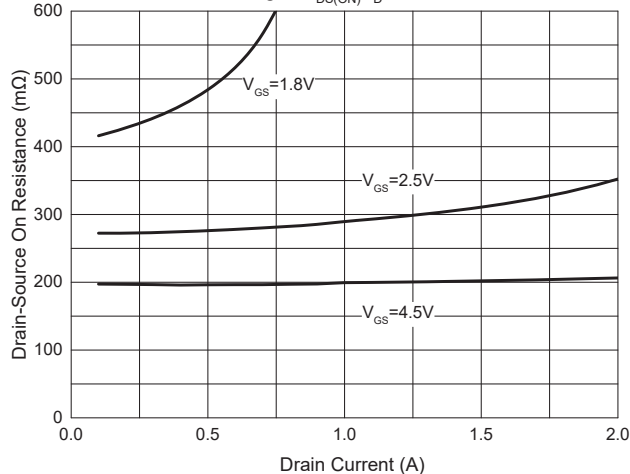


Fig. 5 - Capacitance Characteristics

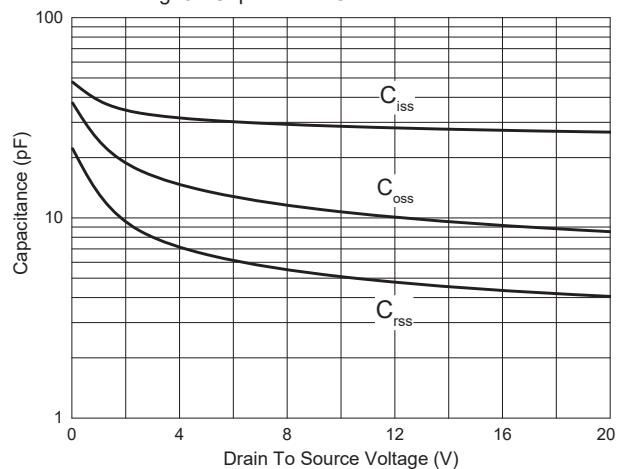
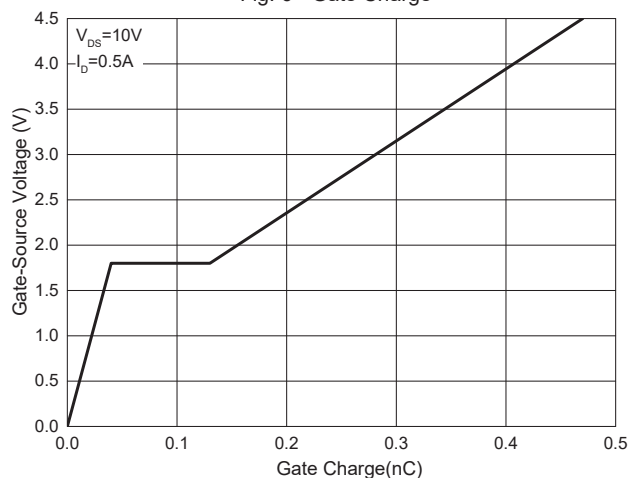


Fig. 6 - Gate Charge



Curve Characteristics

Fig. 7 - Normalized Threshold Voltage

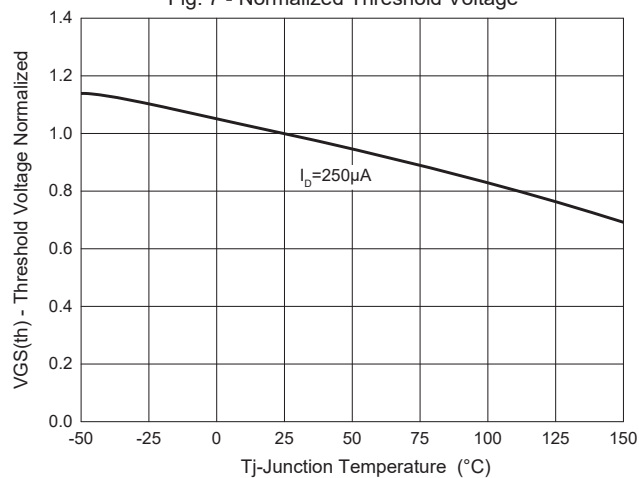


Fig. 8 - Normalized On Resistance Characteristics

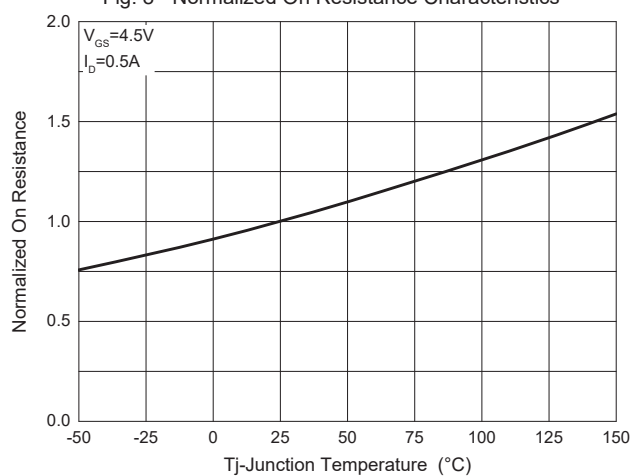


Fig.9- I_S - V_{SD}

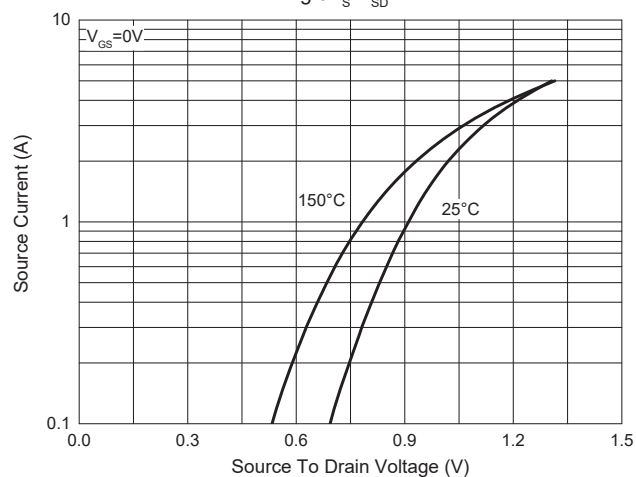


Fig. 10 - Drain Current

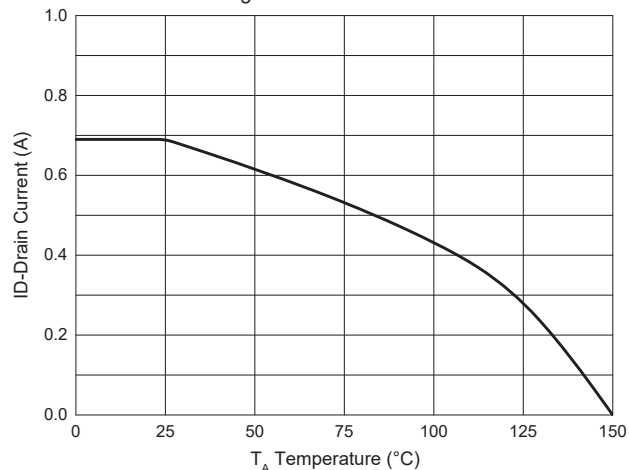
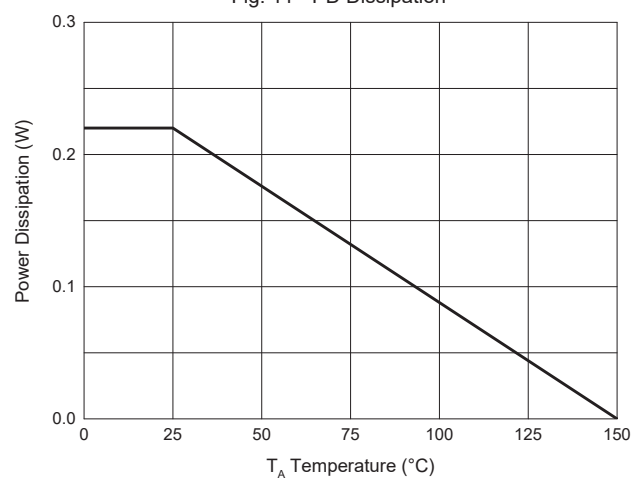


Fig. 11 - PD Dissipation



Curve Characteristics

Fig. 12 - Safe Operation Area

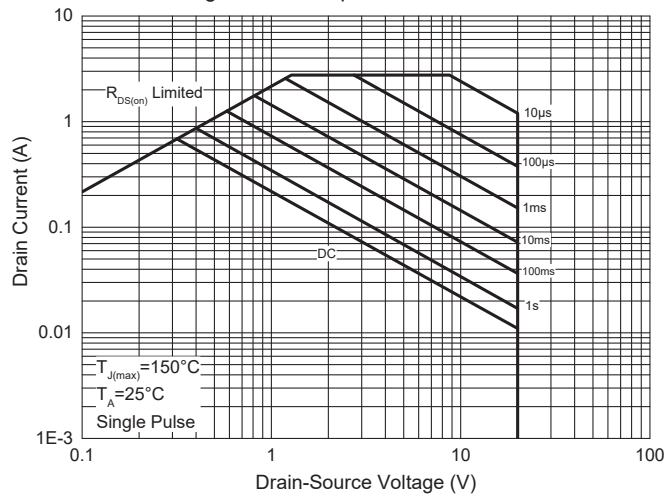
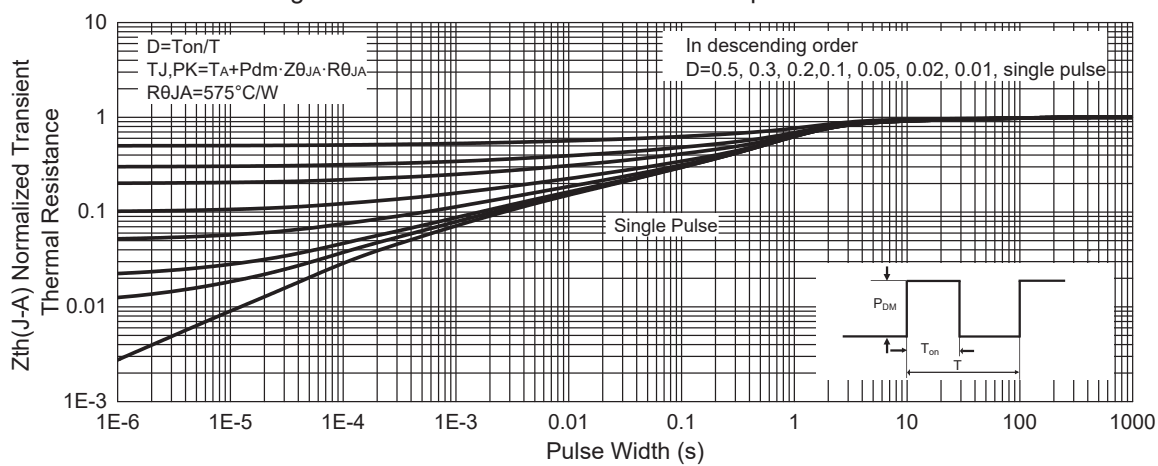


Fig. 13 - Normalized Transient Thermal Impedance



Ordering Information

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

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