Features

- ESD Protected up to 2KV(HBM)
- 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

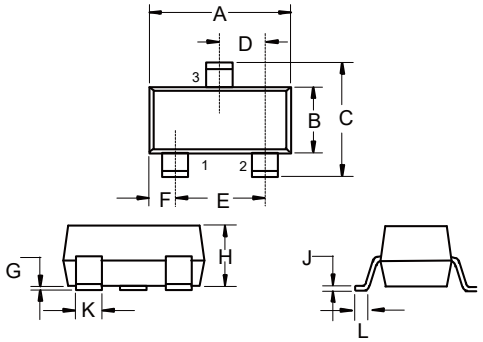
- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature: -55°C to +150°C
- Thermal Resistance: 415°C/W Junction to Ambient(Note 2)

Parameter		Symbol	Rating	Unit
Drain -source Voltage		V_{DS}	30	V
Gate -Source Voltage		V_{GS}	±20	V
Drain Current-Continuous	T_A=25°C	I_D	100	mA
	T_A=100°C		63	
Pulsed Drain Current(Note 3)		I_{DM}	400	mA
Power Dissipation(Note 4)		P_D	0.3	W

Note:

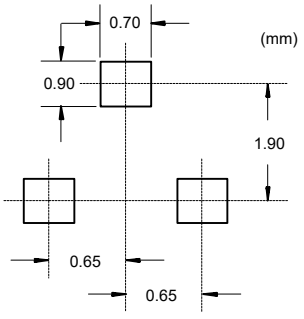
1. Halogen free "Green” products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. The value of $R_{\theta JA}$ is measured with the device mounted on 1in^2 FR-4 board with 2oz. Copper, in a still air environment with T_A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

SOT-323

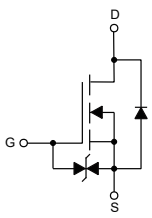


DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.071	0.087	1.80	2.20	
B	0.045	0.053	1.15	1.35	
C	0.083	0.096	2.10	2.45	
D	0.026		0.65		TYP.
E	0.047	0.055	1.20	1.40	
F	0.012	0.016	0.30	0.40	
G	0.000	0.004	0.00	0.10	
H	0.035	0.044	0.90	1.10	
J	0.002	0.010	0.05	0.25	
K	0.006	0.016	0.15	0.40	
L	0.010	0.018	0.26	0.46	

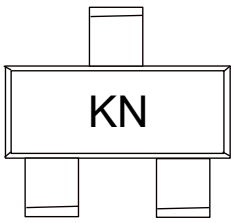
Suggested Solder Pad Layout



Internal Structure and Marking Code



1. GATE
2. SOURCE
3. DRAIN



Electrical Characteristics @ 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	30			V
Gate-Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	0.8	1	1.5	V
Gate-Body Leakage Current	I_{GSS}	V_{GS}=± 20V, V_{DS}=0V			±500	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=30V, V_{GS}=0V			0.2	μA
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=10V, I_D=500mA		1.9	3	Ω
		V_{GS}=4.5V, I_D=200mA		2.1	4	
		V_{GS}=2.5V, I_D=50mA		4.2	13	
Forward Transconductance	g_{FS}	V_{DS}=10V, I_D=500mA		350		mS
Gate Resistance	R_g	f=1 MHz, Open drain		255		Ω
Diode Characteristics						
Continuous Body Diode Current	I_S				0.1	A
Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_S=500mA			1.4	V
Reverse Recovery Time	t_{rr}	I_F=0.3A, dI_F/dt=100A/μs		11		ns
Reverse Recovery Charge	Q_{rr}			3		nC
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=15V,V_{GS}=0V,f=1MHz		16		pF
Output Capacitance	C_{oss}			5.4		
Reverse Transfer Capacitance	C_{rss}			3.3		
Total Gate Charge	Q_g	V_{DS}=15V,V_{GS}=10V,I_D=0.3A		0.78		nC
Gate-Source Charge	Q_{gs}			0.13		
Gate-Drain Charge	Q_{gd}			0.14		
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=15V,V_{GS}=10V, R_G=3.9Ω, I_D=0.3A		2.4		ns
Turn-On Rise Time	t_r			2.7		
Turn-Off Delay Time	$t_{d(off)}$			6		
Turn-Off Fall Time	t_f			10		

Curve Characteristics

Fig.1 - Typical Output Characteristics

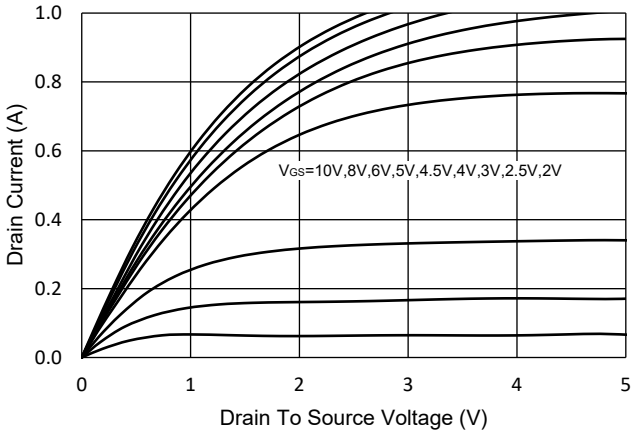


Fig.2 - Transfer Characteristic

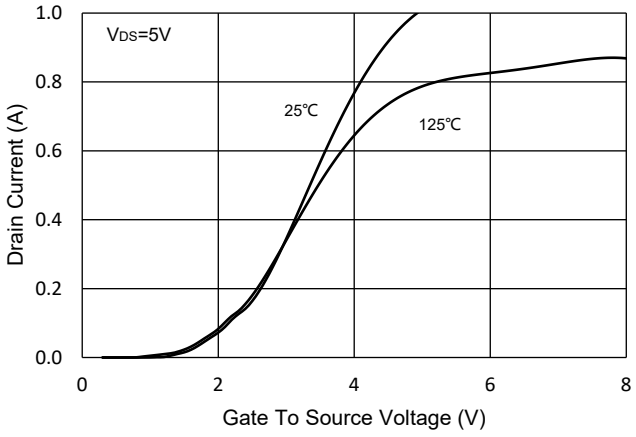


Fig.3 - $R_{DS(ON)}$ - V_{GS}

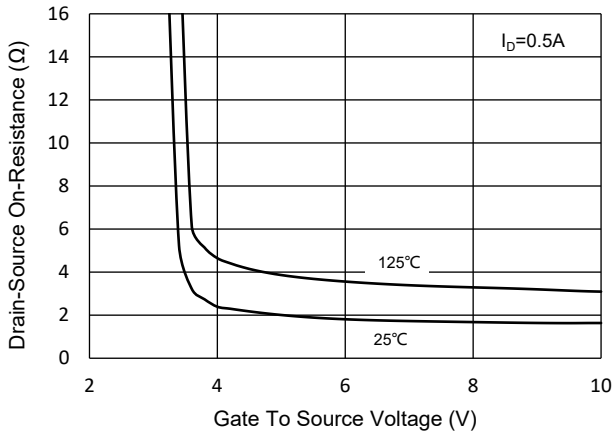


Fig.4 - $R_{DS(ON)}$ - I_D

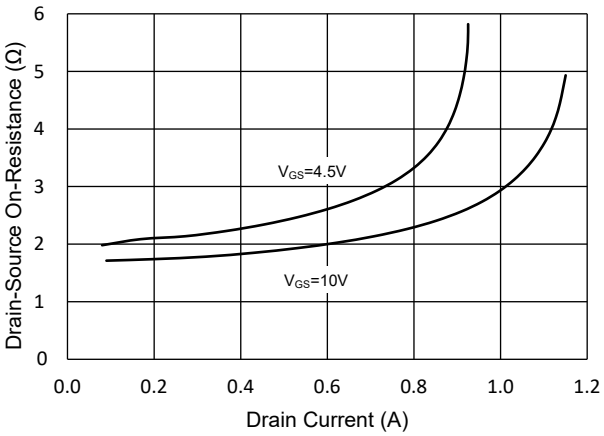


Fig.5 - Capacitance Characteristics

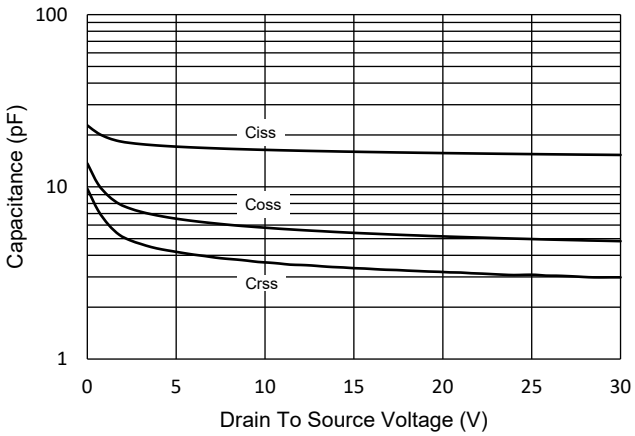
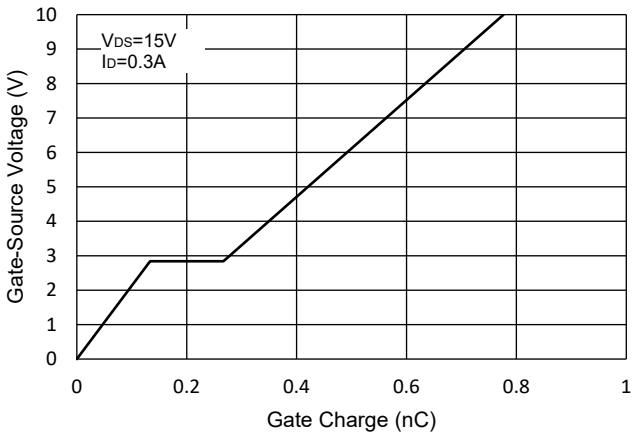


Fig.6 - Gate Charge



Curve Characteristics

Fig.7 - Normalized Threshold Voltage

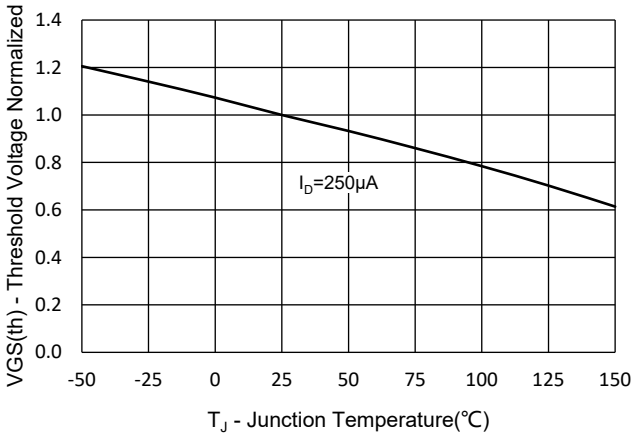


Fig.8 - Normalized On Resistance Characteristics

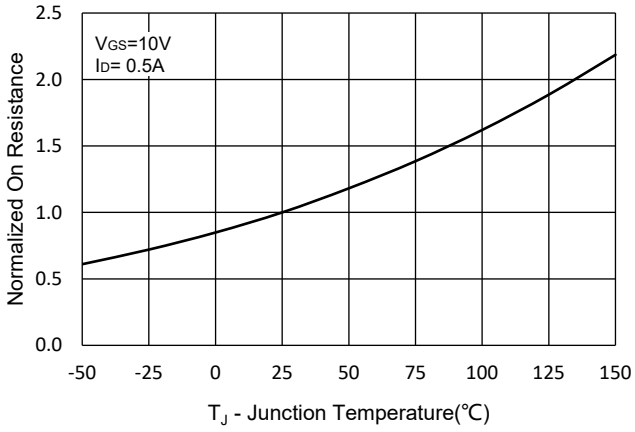


Fig.9 - I_S - V_{SD}

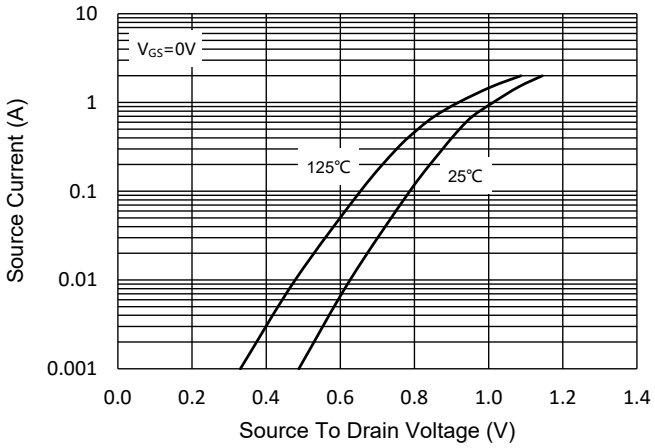


Fig.10 - Drain Current

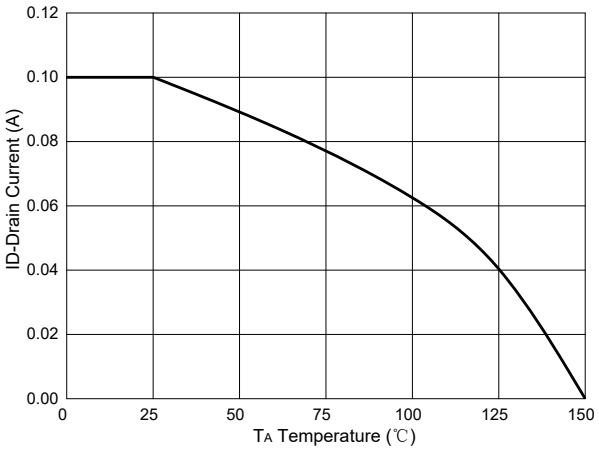
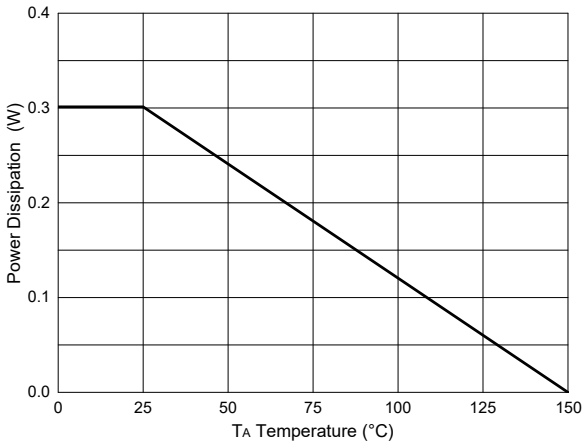


Fig.11 - PD Dissipation



Curve Characteristics

Fig.12 - Safe Operation Area

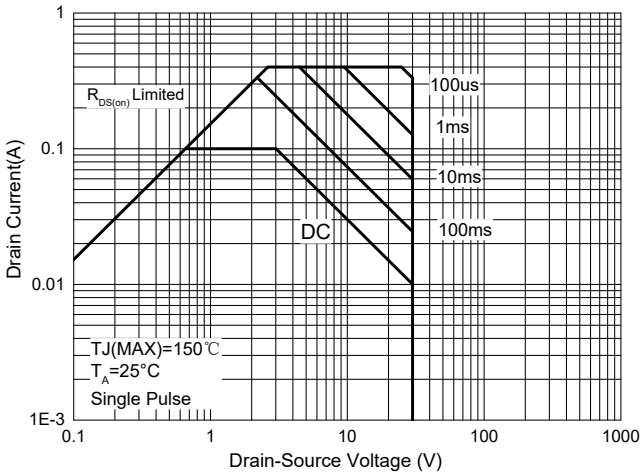
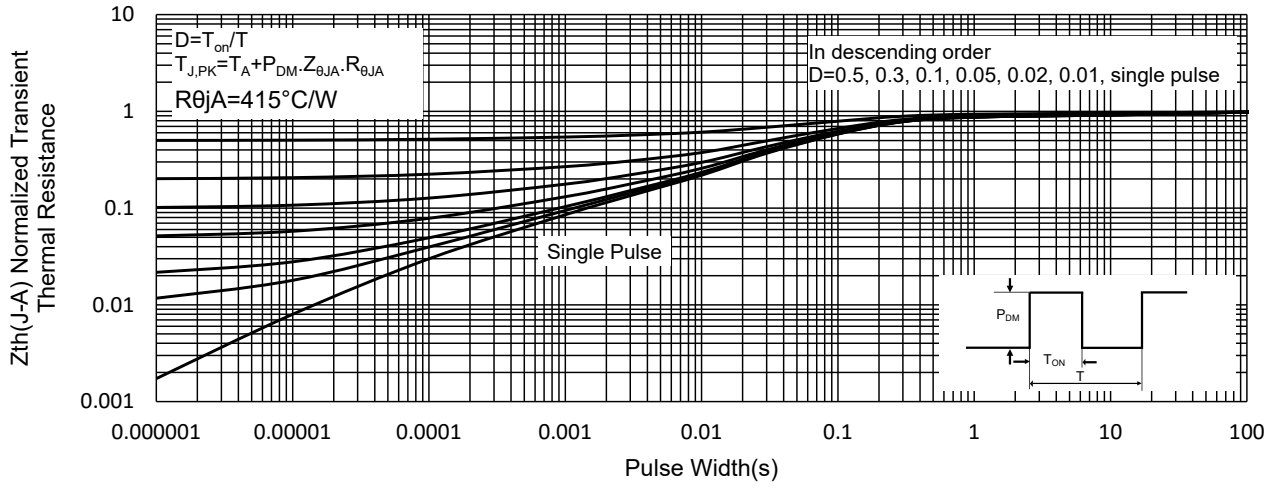


Fig.13 - Normalized Transient Thermal Impedance



Ordering Information

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

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