

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

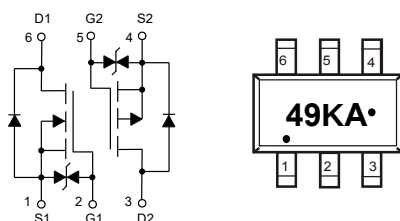
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 385°C/W Junction to Ambient (Note 2)

Parameter		Symbol	Rating	Unit
Total Power Dissipation ^(Note 4)		P _D	325	mW
N-Channel MOSFET				
Drain-Source Voltage		V _{DS}	20	V
Gate-Source Voltage		V _{GS}	±12	V
Continuous Drain Current	T _A =25°C	I _D	0.75	A
	T _A =100°C		0.47	
Pulsed Drain Current ^(Note 3)		I _{DM}	3	A
P-Channel MOSFET				
Drain-Source Voltage		V _{DS}	-20	V
Gate-Source Voltage		V _{GS}	±12	V
Continuous Drain Current	T _A =25°C	I _D	-0.6	A
	T _A =100°C		-0.38	
Pulsed Drain Current ^(Note 3)		I _{DM}	-2.4	A

Note:

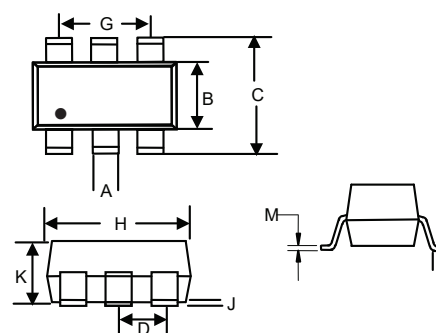
1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. The value of $R_{\theta JA}$ is measured with the device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with $T_A=25^\circ\text{C}$.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



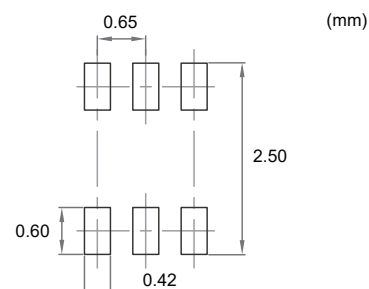
Dual N&P-Channel MOSFET

SOT-363S



DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.006	0.014	0.15	0.35	
B	0.045	0.053	1.15	1.35	
C	0.079	0.087	2.00	2.20	
D	0.026		0.65		TYP.
G	0.047	0.055	1.20	1.40	
H	0.071	0.087	1.80	2.20	
J	-----	0.004	-----	0.10	
K	0.031	0.041	0.80	1.00	
L	0.008	0.016	0.20	0.40	
M	0.003	0.006	0.08	0.15	

Suggested Solder Pad Layout



N-Channel 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	0.35	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		0.19	0.3	Ω
		V _{GS} =2.5V, I _D =400mA		0.27	0.4	
		V _{GS} =1.8V, I _D =200mA		0.44	0.7	
Forward Transconductance	g _{FS}	V _{DS} =5V, I _D =0.75A		1.6		S
Gate Resistance	R _g	f=1 MHz, Open drain		37		Ω
Diode Characteristics						
Continuous Body Diode Current	I _S				0.75	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		12		ns
Reverse Recovery Charge	Q _{rr}			0.6		nC
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =16V,V _{GS} =0V,f=1MHz		28		pF
Output Capacitance	C _{oss}			9.5		
Reverse Transfer Capacitance	C _{rss}			4.6		
Total Gate Charge	Q _g	V _{DS} =10V,V _{GS} =4.5V,I _D =0.5A		1.2		nC
Gate-Source Charge	Q _{gs}			0.26		
Gate-Drain Charge	Q _{gd}			0.23		
Turn-On Delay Time	t _{d(on)}	V _{DD} =10V,V _{GS} =10V, R _G =3Ω, I _D =0.5A		2		ns
Turn-On Rise Time	t _r			17		
Turn-Off Delay Time	t _{d(off)}			14		
Turn-Off Fall Time	t _f			26		

P-Channel 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	-0.35	-0.64	-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		0.63	0.85	Ω
		V _{GS} =-2.5V, I _D =-300mA		0.85	1.2	
		V _{GS} =-1.8V, I _D =-200mA		1.37	2	
Forward Transconductance	g _{FS}	V _{DS} =-10V, I _D =-500mA		1		S
Gate Resistance	R _g	f=1 MHz, Open drain		31		Ω
Diode Characteristics						
Continuous Body Diode Current	I _S				-0.6	A
Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =-500mA			-1.2	V
Reverse Recovery Time	t _{rr}	I _F =-0.3A, dI _F /dt=100A/μs		9		ns
Reverse Recovery Charge	Q _{rr}			2.6		nC
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =-16V, V _{GS} =0V, f=1MHz		36		pF
Output Capacitance	C _{oss}			12		
Reverse Transfer Capacitance	C _{rss}			6.6		
Total Gate Charge	Q _g	V _{DS} =-10V, V _{GS} =-4.5V, I _D =-0.3A		1.24		nC
Gate-Source Charge	Q _{gs}			0.28		
Gate-Drain Charge	Q _{gd}			0.23		
Turn-On Delay Time	t _{d(on)}	V _{DD} =-10V, V _{GS} =-4.5V, R _G =10Ω, I _D =-300mA		4		ns
Turn-On Rise Time	t _r			5		
Turn-Off Delay Time	t _{d(off)}			9		
Turn-Off Fall Time	t _f			5		

Curve Characteristics (N-Channel)

Fig.1 - Typical Output Characteristics

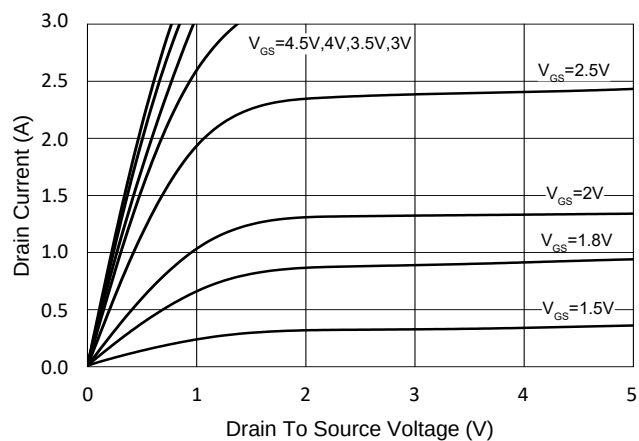


Fig.2 - Transfer Characteristic

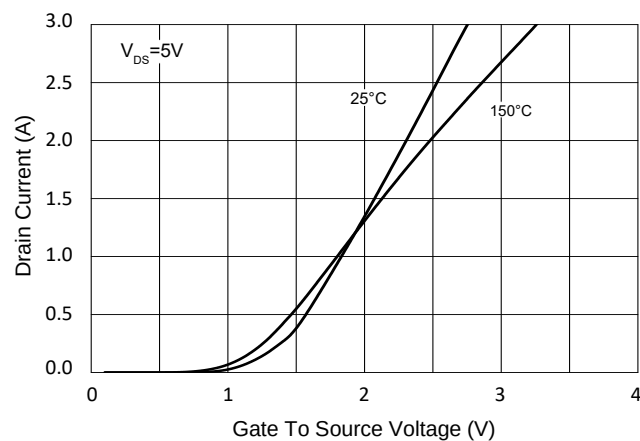


Fig.3 - $R_{DS(ON)}$ - V_{GS}

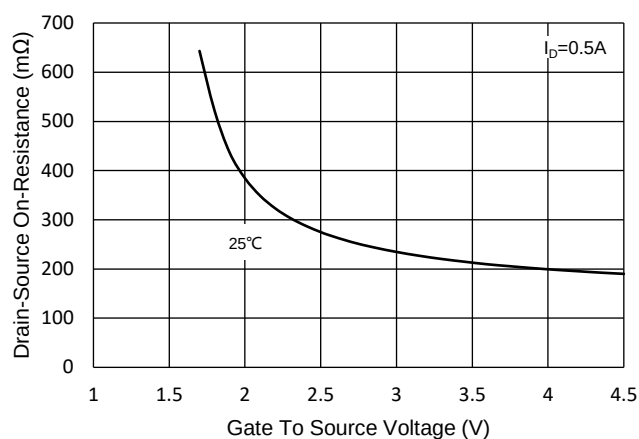


Fig.4 - $R_{DS(ON)}$ - I_D

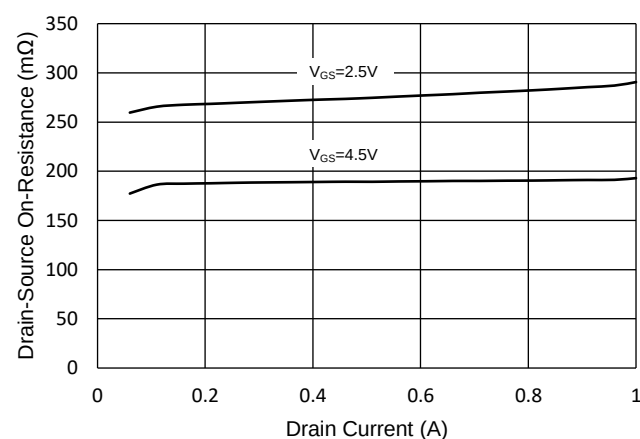


Fig.5 - Capacitance Characteristics

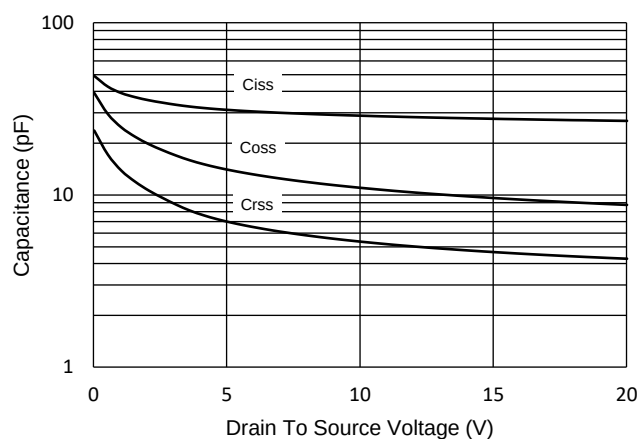
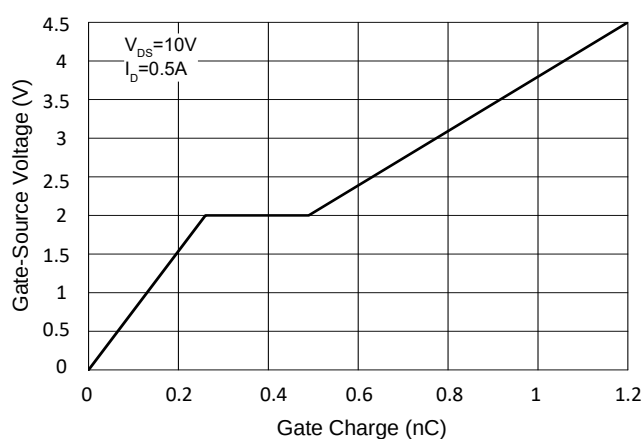


Fig.6 - Gate Charge



Curve Characteristics (N-Channel)

Fig.7 - Normalized Threshold Voltage

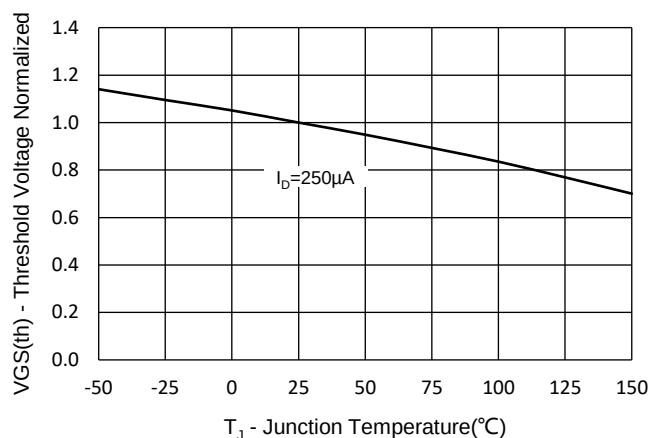


Fig.8 - Normalized On Resistance Characteristics

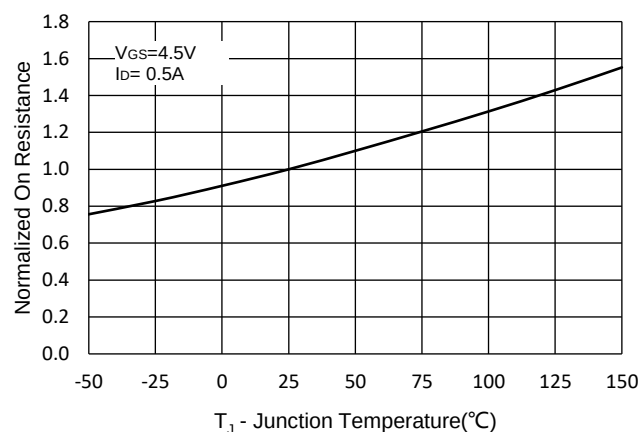


Fig.9 - I_S - V_{SD}

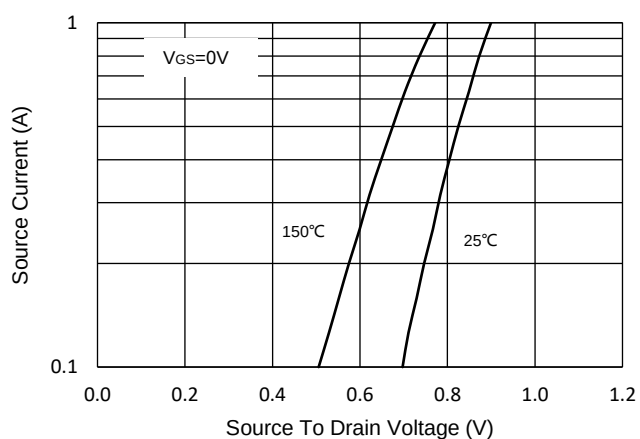


Fig.10 - Drain Current

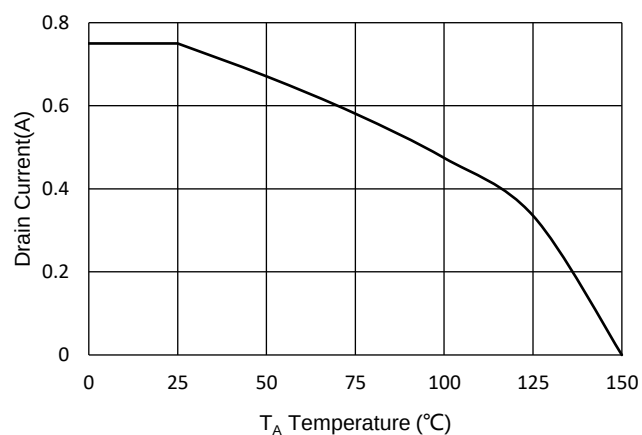
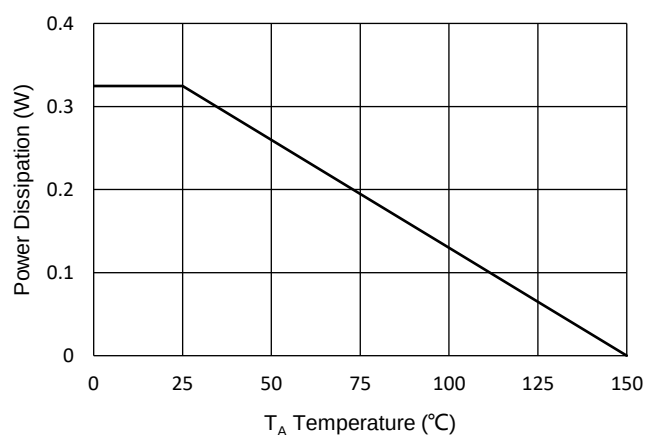


Fig.11 - PD Dissipation



Curve Characteristics (N-Channel)

Fig.12 - Safe Operation Area

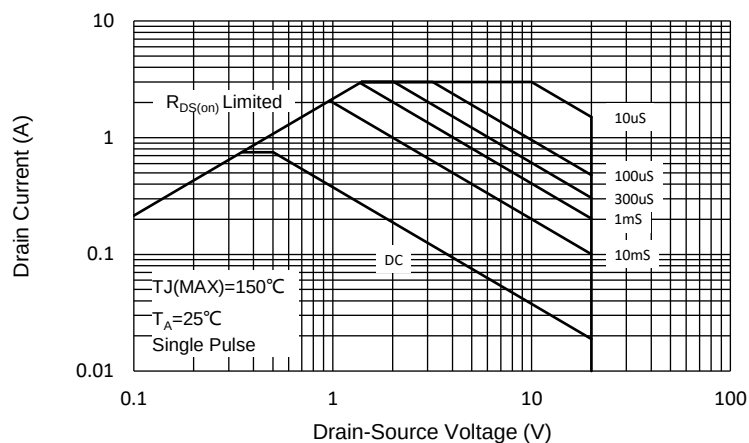
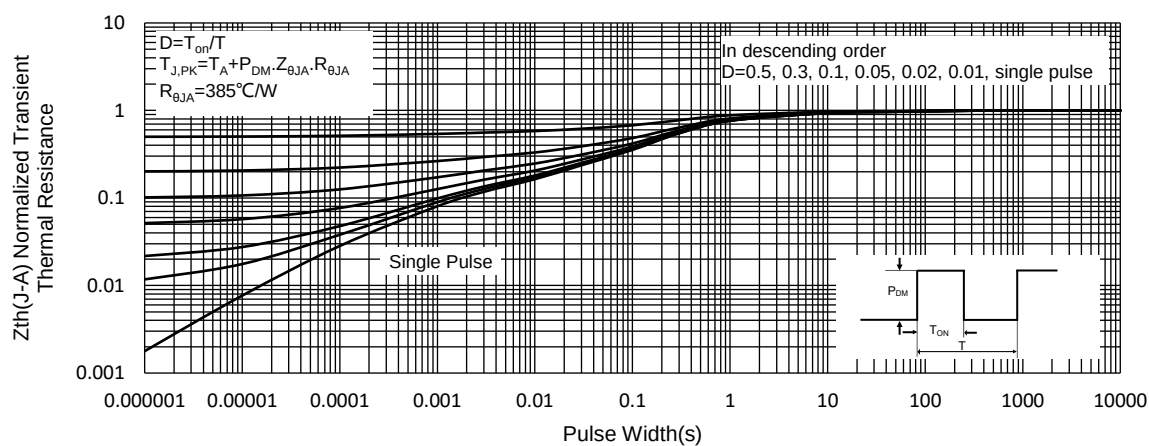


Fig.13 - Normalized Transient Thermal Impedance



Curve Characteristics (P-Channel)

Fig.1 - Typical Output Characteristics

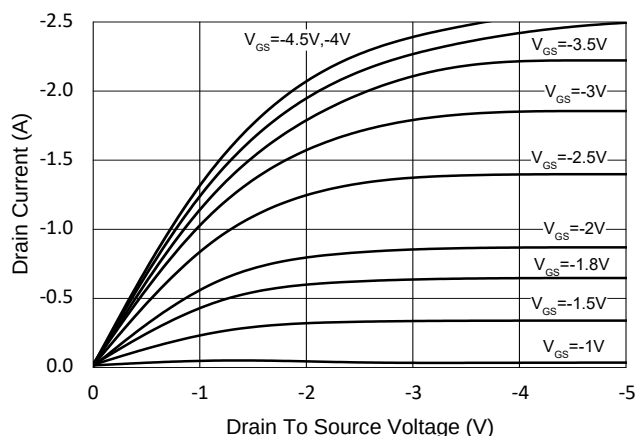


Fig.2 - Transfer Characteristic

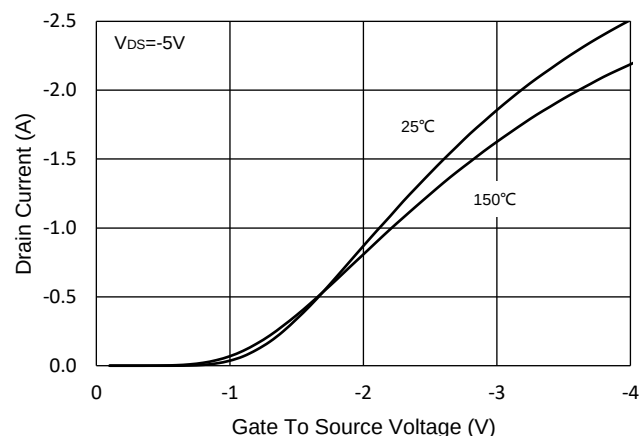


Fig.3 - $R_{DS(ON)}$ - V_{GS}

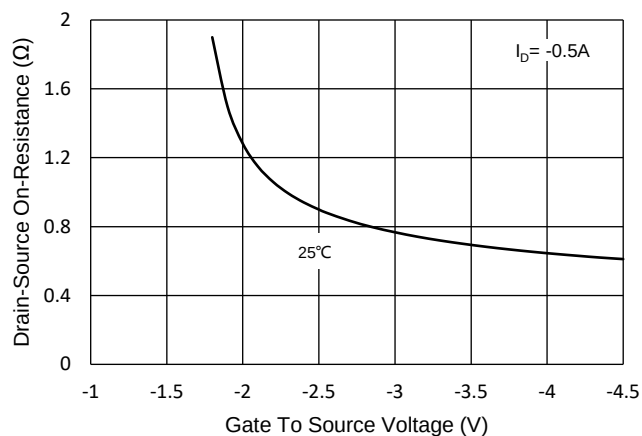


Fig.4 - $R_{DS(ON)}$ - I_D

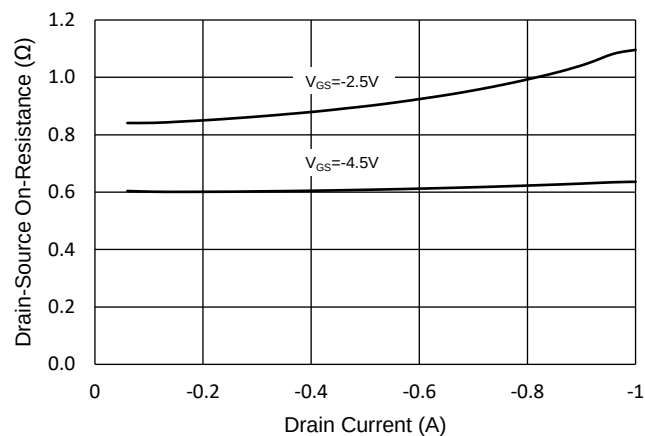


Fig.5 - Capacitance Characteristics

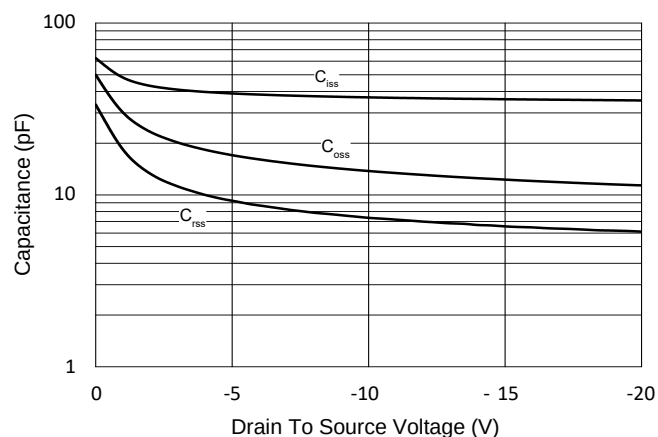
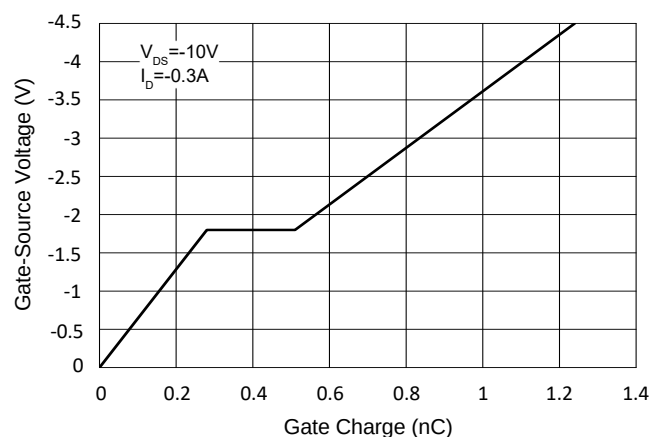


Fig.6 - Gate Charge



Curve Characteristics (P-Channel)

Fig.7 - Normalized Threshold Voltage

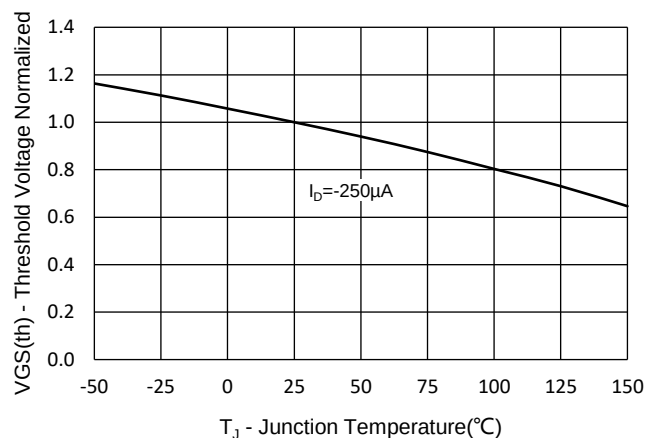


Fig.8 - Normalized On Resistance Characteristics

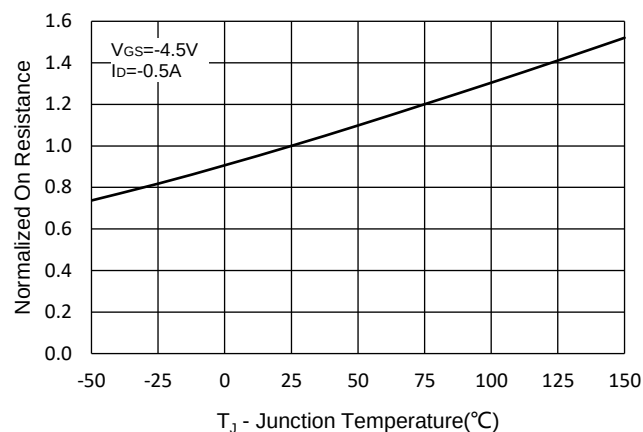


Fig.9 - $I_S - V_{SD}$

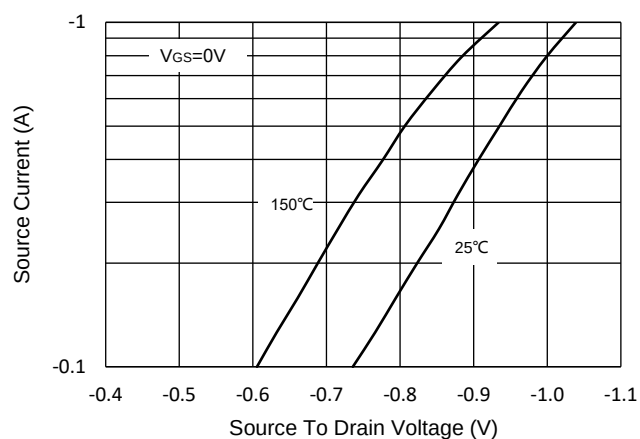


Fig.10 - Drain Current

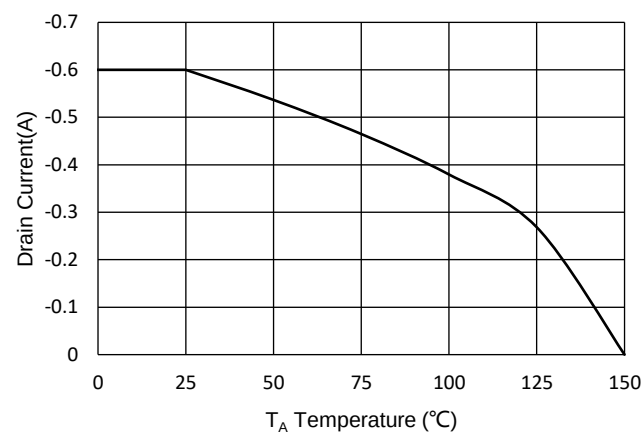
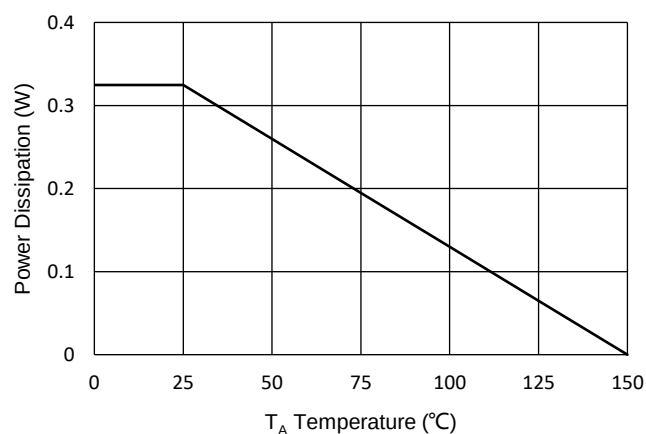


Fig.11 - PD Dissipation



Curve Characteristics (P-Channel)

Fig.12 - Safe Operation Area

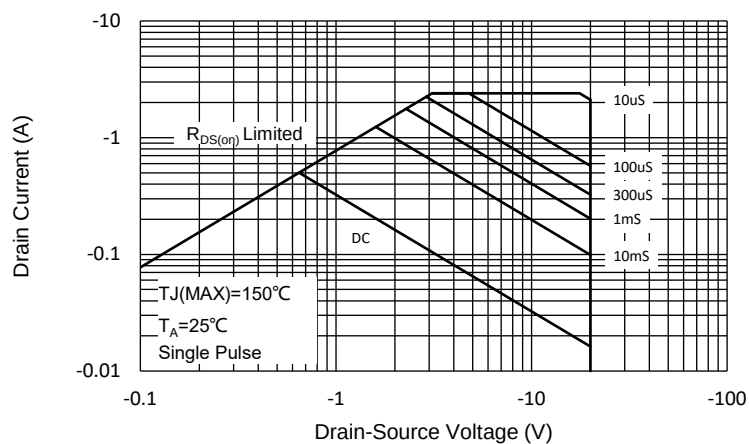
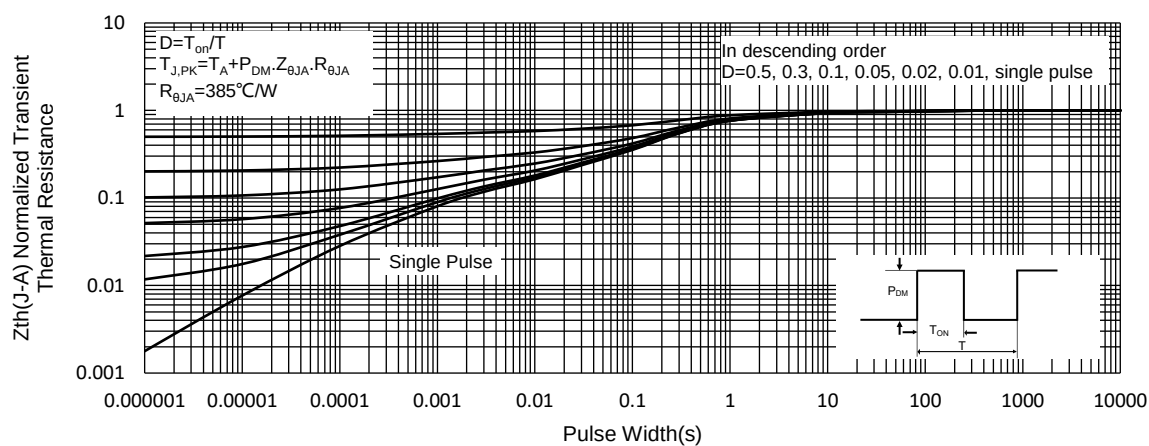


Fig.13 - Normalized Transient Thermal Impedance



Ordering Information

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

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