

Features

- Trench LV MOSFET Technology
- Exceptional ON Resistance and Maximum DC Current Capability
- 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

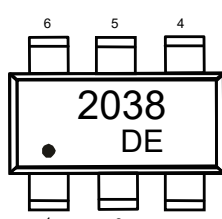
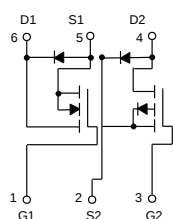
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 120°C/W Junction to Ambient^(Note 2)

Parameter	Symbol	Rating	Unit
Total Power Dissipation ^(Note 4)	P_D	1.05	W
N-Channel MOSFET			
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	±10	V
Continuous Drain Current	I_D	$T_A=25^\circ\text{C}$	5
		$T_A=100^\circ\text{C}$	3.1
Pulsed Drain Current ^(Note 3)	I_{DM}	20	A
P-Channel MOSFET			
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	±12	V
Continuous Drain Current	I_D	$T_A=25^\circ\text{C}$	-4
		$T_A=100^\circ\text{C}$	-2.5
Pulsed Drain Current ^(Note 3)	I_{DM}	-16	A

Note:

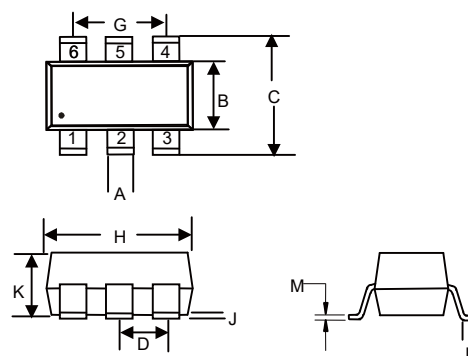
1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. The value of $R_{\theta JA}$ is measured with the device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with $T_A=25^\circ\text{C}$.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

SOT23-6L



DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.012	0.020	0.30	0.50	
B	0.051	0.070	1.30	1.80	
C	0.087	0.126	2.20	3.20	
D	0.037		0.95		TYP.
G	0.074		1.90		TYP.
H	0.106	0.122	2.70	3.10	
J	0.002	0.006	0.05	0.15	
K	0.030	0.051	0.75	1.30	
L	0.012	0.024	0.30	0.60	
M	0.003	0.008	0.08	0.22	

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	0.5	0.7	1	V
Gate-Body Leakage Current	I _{GSS}	V _{GS} =±12V, V _{DS} =0V			±100	nA
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 =4.5A		18	25	mΩ
		V _{GS} =2.5V, I _D =3A		23	32	
		V _{GS} =1.8V, I _D =2A		30	49	
Forward Transconductance	g _{FS}	V _{DS} =5V, I _D =4A		21		S
Gate Resistance	R _g	f=1 MHz, Open drain		2.3		Ω
Diode Characteristics						
Continuous Body Diode Current	I _S				5	A
Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =1.7A			1.3	V
Reverse Recovery Time	t _{rr}	I _F =4A, dI _F /dt=100A/μs		12		ns
Reverse Recovery Charge	Q _{rr}			3.6		nC
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =10V,V _{GS} =0V,f=1MHz		386		pF
Output Capacitance	C _{oss}			71		
Reverse Transfer Capacitance	C _{rss}			62		
Total Gate Charge	Q _g	V _{DS} =10V,V _{GS} =4.5V,I _D =4A		5.4		nC
Gate-Source Charge	Q _{gs}			0.6		
Gate-Drain Charge	Q _{gd}			1.5		
Turn-On Delay Time	t _{d(on)}	V _{DD} =10V,V _{GS} =4.5V, R _G =3Ω, I _D =4A		5		ns
Turn-On Rise Time	t _r			7		
Turn-Off Delay Time	t _{d(off)}			16		
Turn-Off Fall Time	t _f			5		

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	-0.5	-0.7	-1	V
Gate-Body Leakage Current	I _{GSS}	V _{GS} =±12V, V _{DS} =0V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-16V, V _{GS} =0V			-1	μA
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =-4.5V, I _D =-3.5A		49	64	mΩ
		V _{GS} =-2.5V, I _D =-3A		64	80	
		V _{GS} =-1.8V, I _D =-2A		90	110	
Forward Transconductance	g _{FS}	V _{DS} =-5V, I _D =-2.3A		10		S
Gate Resistance	R _g	f=1 MHz, Open drain		14		Ω
Diode Characteristics						
Continuous Body Diode Current	I _S				-4	A
Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =-1.25A			-1.3	V
Reverse Recovery Time	t _{rr}	I _F =-1.4A, dI _F /dt=100A/μs		16		ns
Reverse Recovery Charge	Q _{rr}			4.7		nC
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =-10V, V _{GS} =0V, f=1MHz		490		pF
Output Capacitance	C _{oss}			69		
Reverse Transfer Capacitance	C _{rss}			58		
Total Gate Charge	Q _g	V _{DS} =-10V, V _{GS} =-4.5V, I _D =-2.3A		5.8		nC
Gate-Source Charge	Q _{gs}			1.4		
Gate-Drain Charge	Q _{gd}			1.2		
Turn-On Delay Time	t _{d(on)}	V _{DD} =-10V, V _{GS} =-4.5V, R _G =6Ω, I _D =-1.4A		8		ns
Turn-On Rise Time	t _r			9		
Turn-Off Delay Time	t _{d(off)}			26		
Turn-Off Fall Time	t _f			26		

Curve Characteristics(N-Channel)

Fig.1 - Typical Output Characteristics

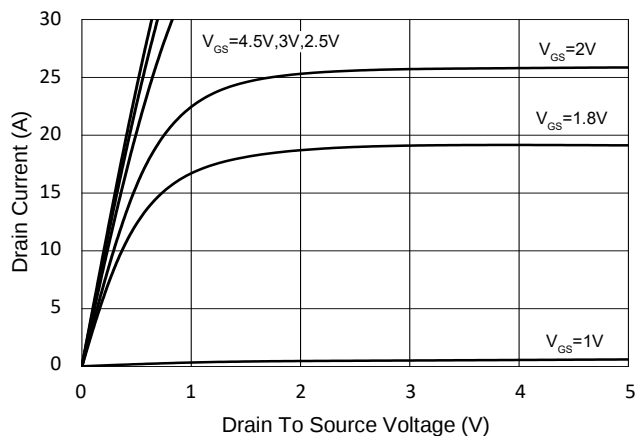


Fig.2 - Transfer Characteristic

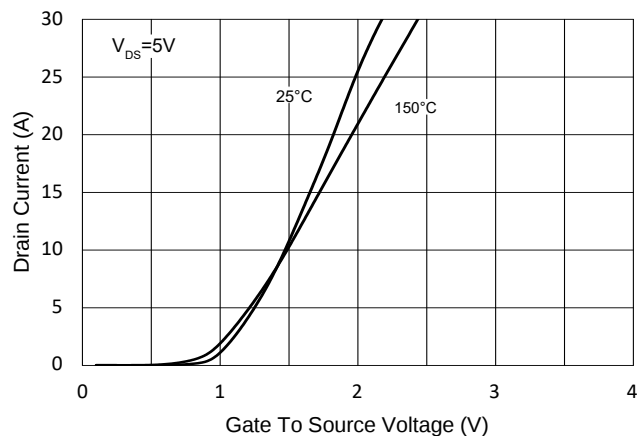


Fig.3 - $R_{DS(ON)}$ - V_{GS}

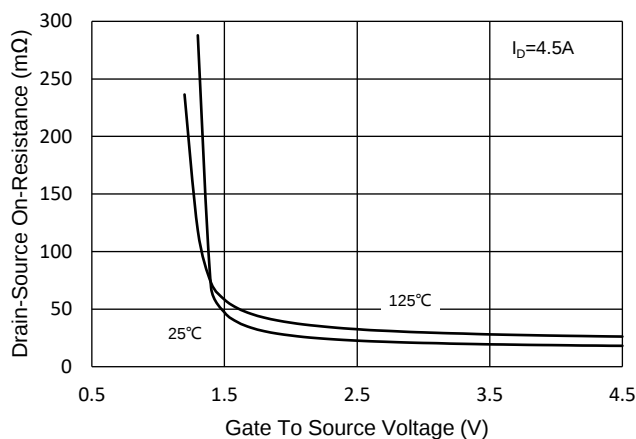


Fig.4 - $R_{DS(ON)}$ - I_D

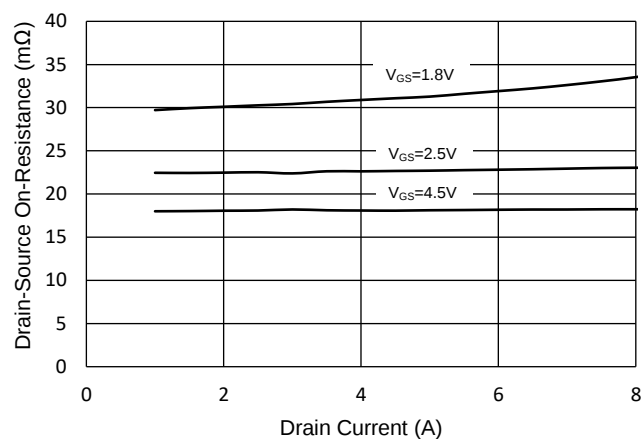


Fig.5 - Capacitance Characteristics

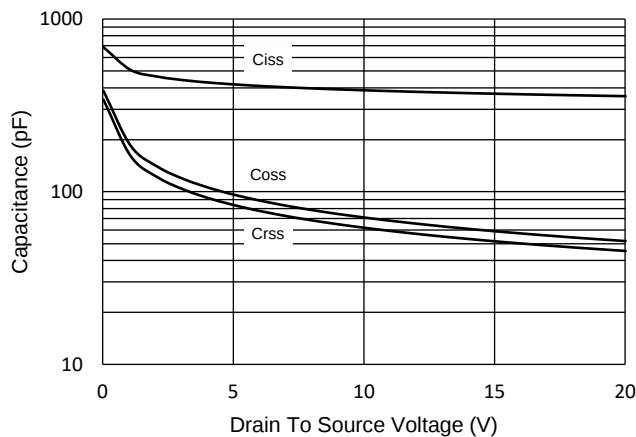
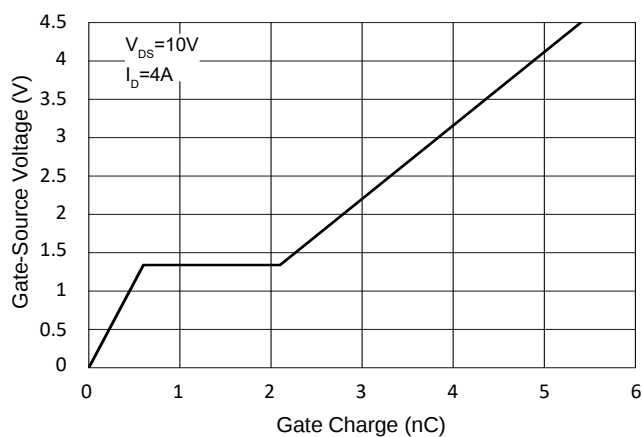


Fig.6 - Gate Charge



Curve Characteristics(N-Channel)

Fig.7 - Normalized Threshold Voltage

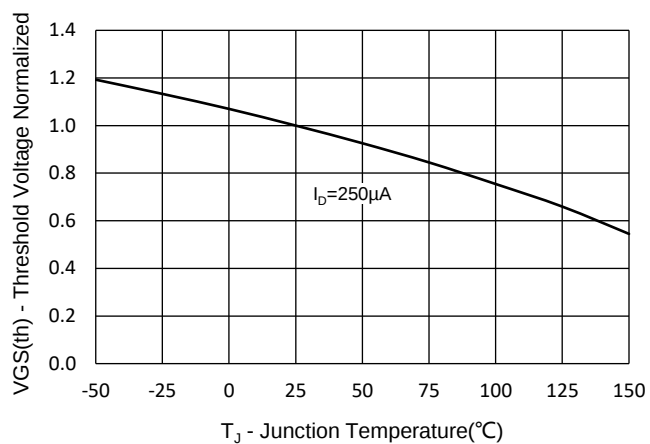


Fig.8 - Normalized On Resistance Characteristics

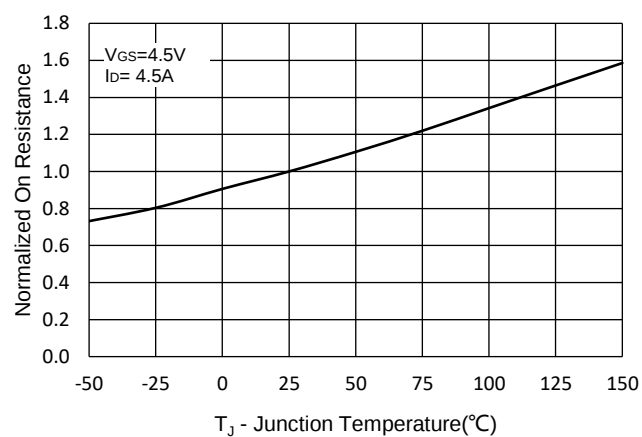


Fig.9 - $I_S - V_{SD}$

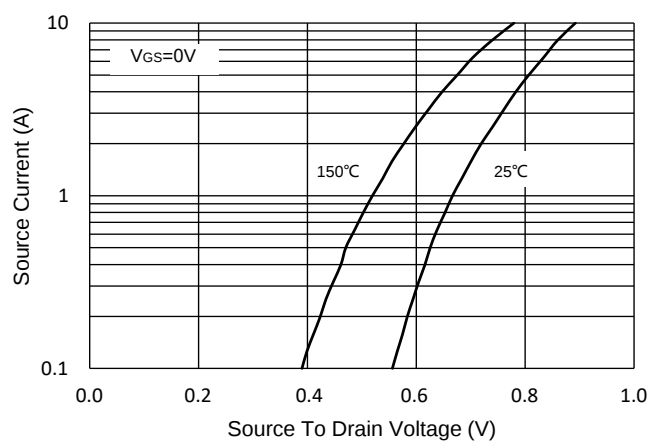


Fig.10 - Drain Current

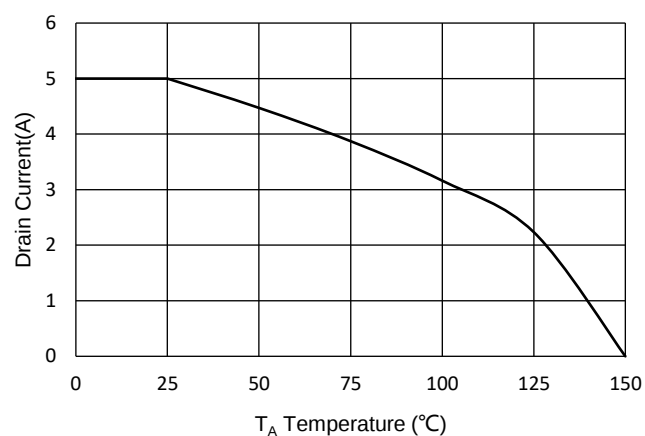
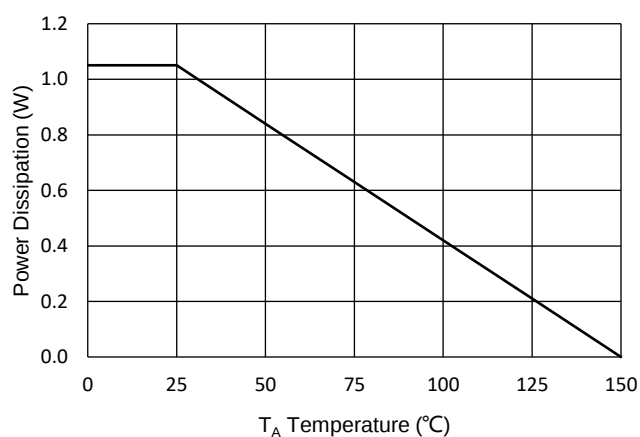


Fig.11 - PD Dissipation



Curve Characteristics(N-Channel)

Fig.12 - Safe Operation Area

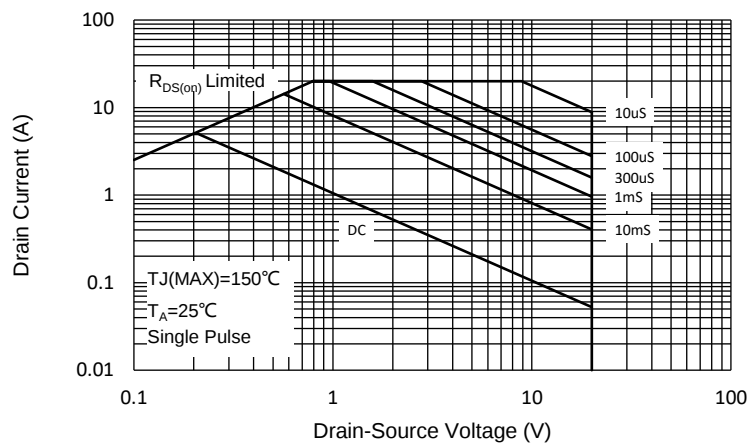
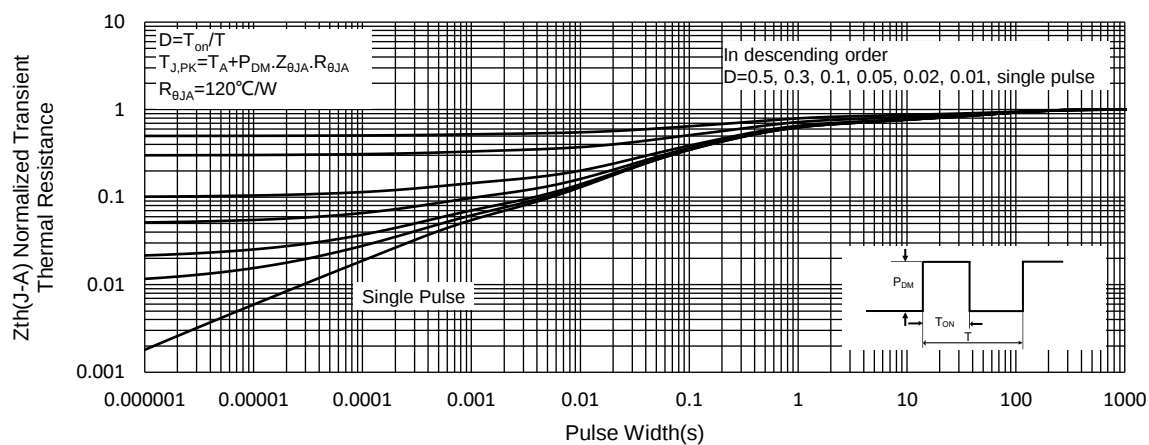


Fig.13 - Normalized Transient Thermal Impedance



Curve Characteristics(P-Channel)

Fig.1 - Typical Output Characteristics

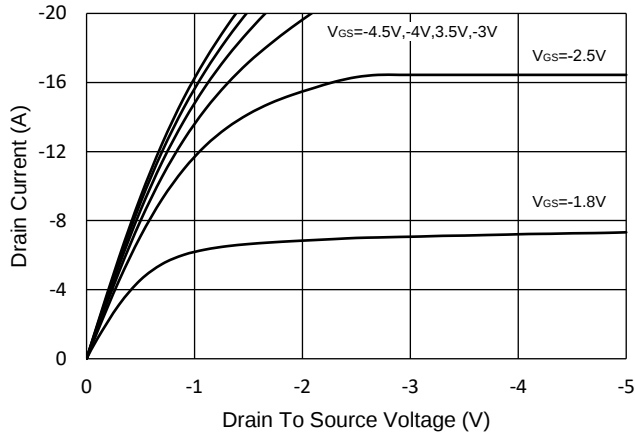


Fig.2 - Transfer Characteristic

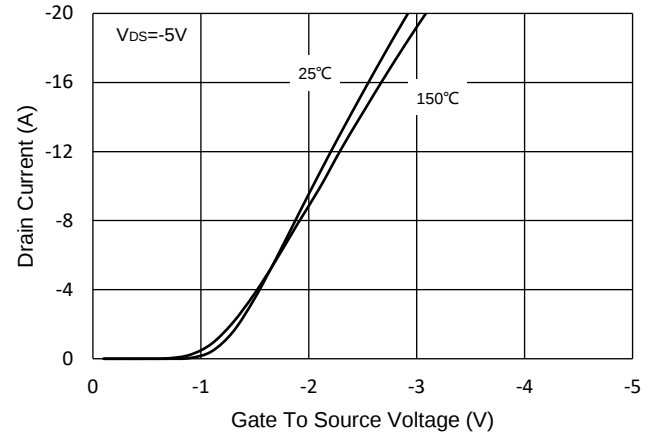


Fig.3 - $R_{DS(ON)} - V_{GS}$

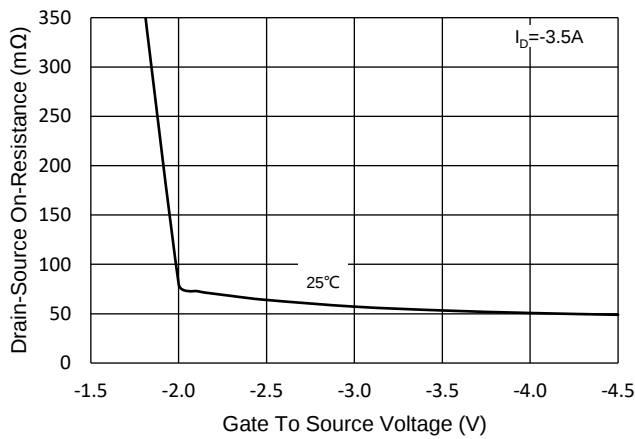


Fig.4 - $R_{DS(ON)} - I_D$

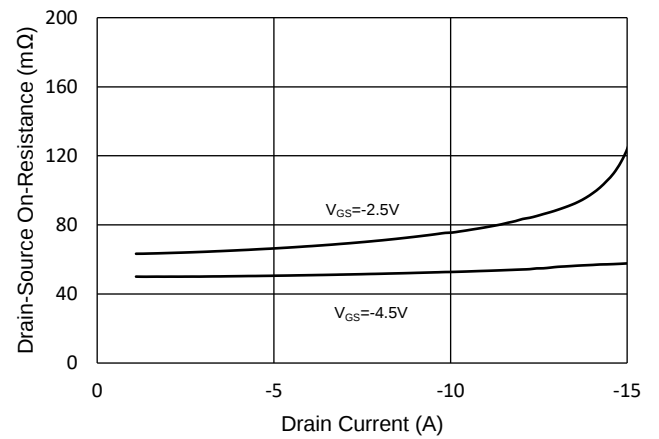


Fig.5 - Capacitance Characteristics

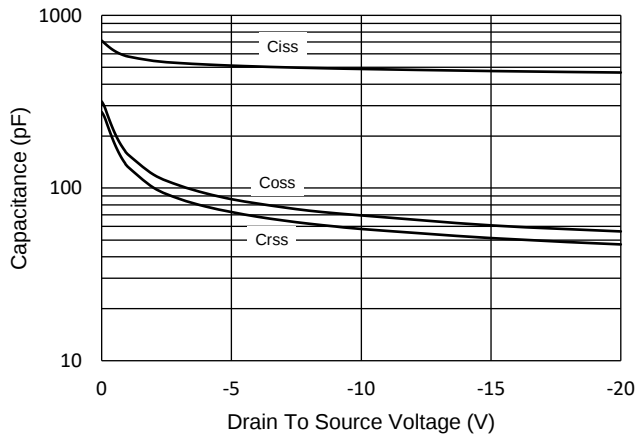
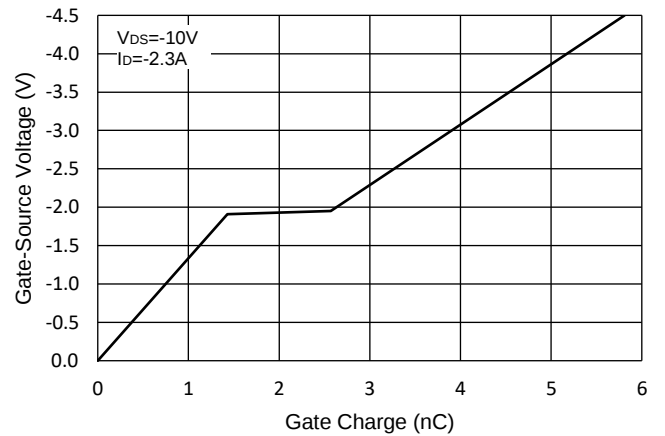


Fig.6 - Gate Charge



Curve Characteristics(P-Channel)

Fig.7 - Normalized Threshold Voltage

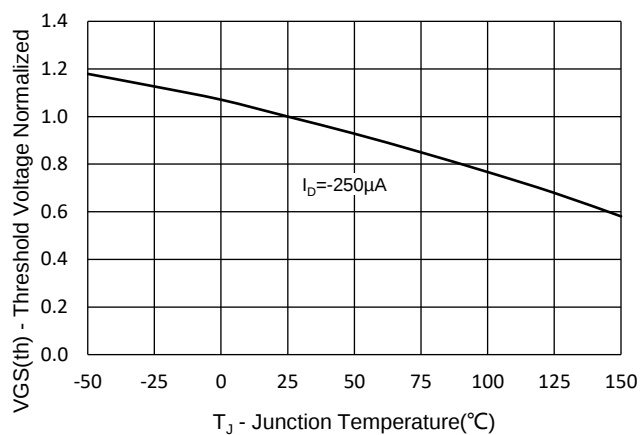


Fig.8 - Normalized On Resistance Characteristics

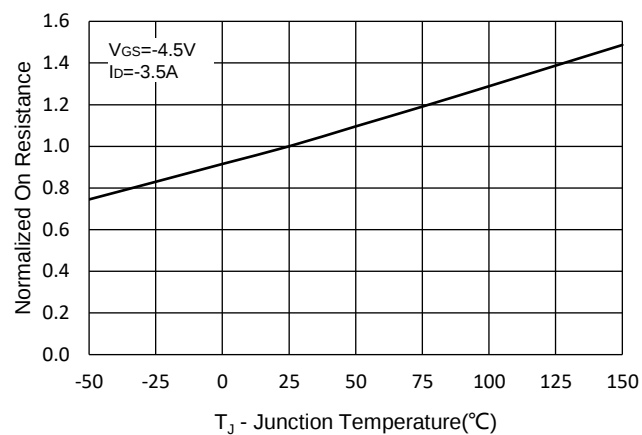


Fig.9 - $I_S - V_{SD}$

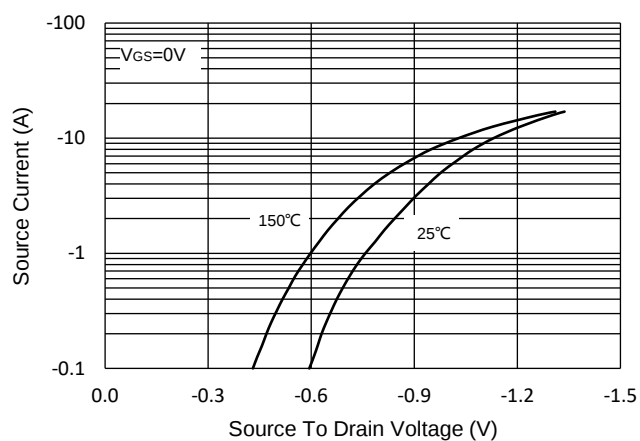


Fig.10 - Drain Current

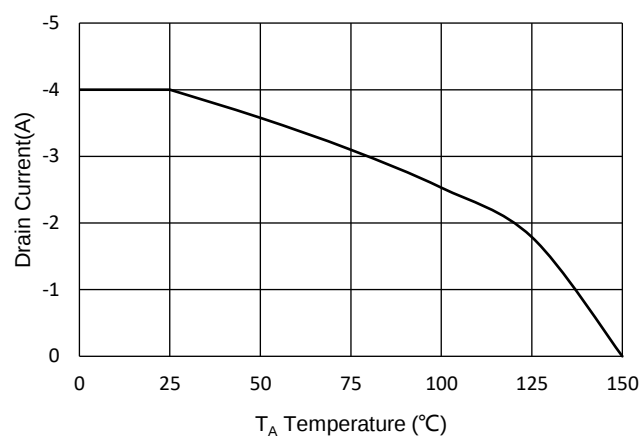
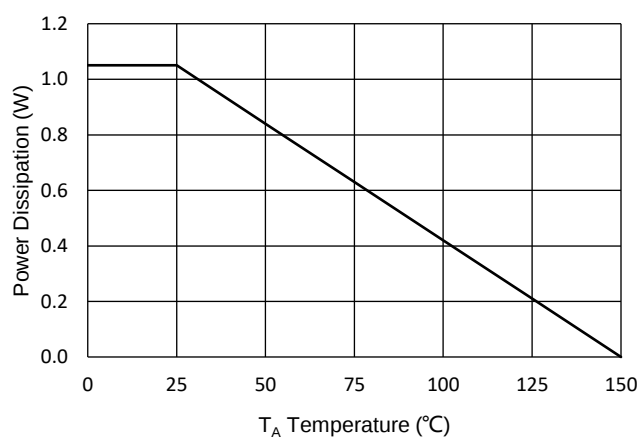


Fig.11 - PD Dissipation



Curve Characteristics(P-Channel)

Fig.12 - Safe Operation Area

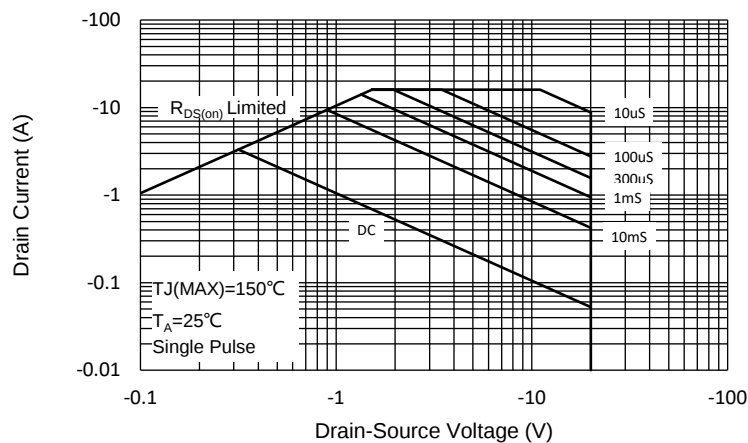
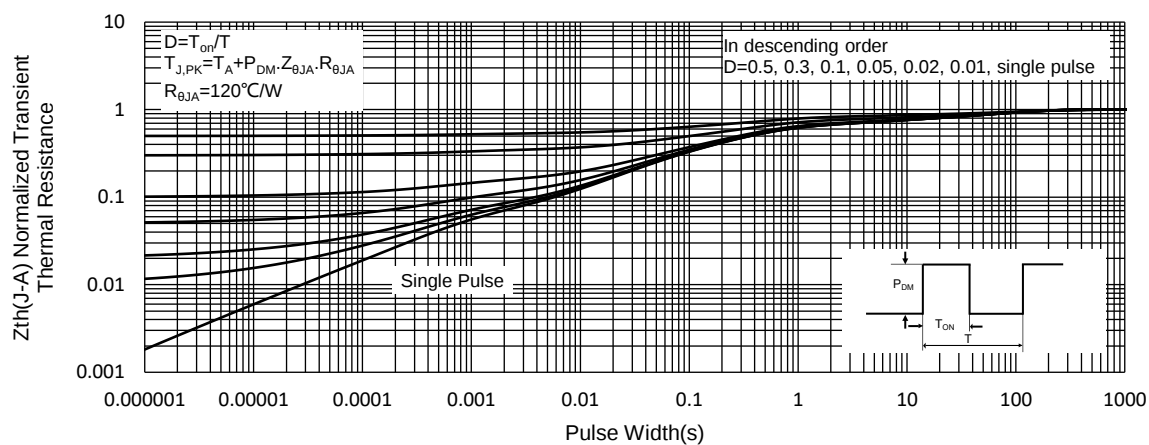


Fig.13 - Normalized Transient Thermal Impedance



Ordering Information

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

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