

Features

- AEC-Q101 Qualified
- Low RDS(on)
- Epoxy Meets UL 94 V-0 Flammability Rating
- Moisture Sensitivity Level 1
- Halogen Free. "Green" Device (Note 1)
- 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: 186°C/W Junction to Ambient (Note 2)

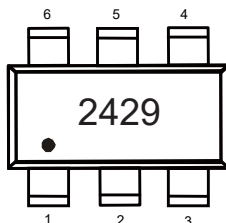
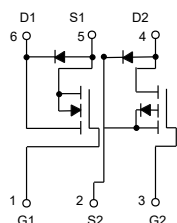
Parameter	Symbol	Rating	Unit
Total Power Dissipation	P_D	670	mW
N-Channel MOSFET			
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	±10	V
Continuous Drain Current	$T_A=25^\circ\text{C}$	2.0	A
	$T_A=100^\circ\text{C}$	1.3	A
Pulsed Drain Current (Note 3)	I_{DM}	8.0	A
P-Channel MOSFET			
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	±10	V
Continuous Drain Current	$T_A=25^\circ\text{C}$	-1.6	A
	$T_A=100^\circ\text{C}$	-1.0	A
Pulsed Drain Current (Note 3)	I_{DM}	-6.4	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 θ JA is measured with the device mounted on 1 in² FR-4 board with 2oz. copper, in a still air environment with T_A=25°C.

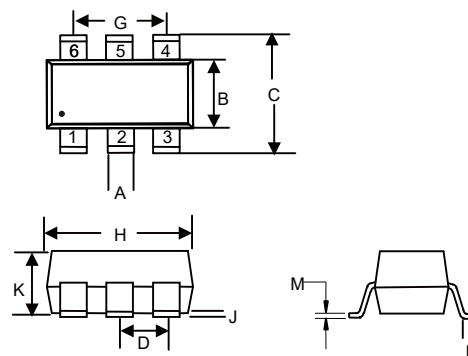
3. Pulse Width Limited by Maximum Junction Temperature.

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 MOSFET 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	20			V
Gate-Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	0.55	0.78	1.1	V
Gate-Body Leakage Current	I _{GSS}	V _{GS} =±10V, 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 =1A		38	57	mΩ
		V _{GS} =2.5V, I _D =0.6A		50	75	
		V _{GS} =1.8V, I _D =0.3A		75	120	
Gate Resistance	R _g	F=1 MHz		2.5		Ω
Forward Transconductance	g _{fs}	V _{DS} =5V, I _D =1.2A		7.3		S
Drain-Source Diode Characteristics						
Diode Forward Current	I _S				2	A
Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _s =1.5A			1.2	V
Reverse Recovery Time	t _{rr}	I _F =2A, di/dt=80A/us		4.8		nS
Reverse Recovery Charge	Q _{rr}			0.9		nC
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =10V, V _{GS} =0V, f=1MHz		188		pF
Output Capacitance	C _{oss}			35		
Reverse Transfer Capacitance	C _{rss}			29		
Total Gate Charge	Q _g	V _{GS} =4.5V, V _{DS} =10V, I _D =2A		3.16		nC
Gate-Source Charge	Q _{gs}			0.75		
Gate-Drain Charge	Q _{gd}			0.76		
Turn-on Delay Time	t _{d(on)}	V _{DS} =10V, V _{GS} =4.5V, I _D =2A, R _G =3Ω		4.7		ns
Turn-on Rise Time	t _r			28		
Turn-off Delay Time	t _{d(off)}			14.7		
Turn-off Fall Time	t _f			27.7		

P-Channel MOSFET 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	-20			V
Gate-Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250μA	-0.4	-0.65	-1.0	V
Gate-Body Leakage Current	I _{GSS}	V _{GS} =±10V, 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 =-1A		86	120	mΩ
		V _{GS} =-2.5V, I _D =-0.6A		115	165	
		V _{GS} =-1.8V, I _D =-0.3A		160	240	
Gate Resistance	R _g	F=1 MHz		14.5		Ω
Forward Transconductance	g _{fs}	V _{DS} =-5V, I _D =-1.2A		4.9		S
Drain-Source Diode Characteristics						
Diode Forward Current	I _S				-1.6	A
Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _s =-0.5A			-1.2	V
Reverse Recovery Time	t _{rr}	I _F =-1.2A,di/dt=60A/us		5.4		nS
Reverse Recovery Charge	Q _{rr}			0.9		nC
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =-10V,V _{GS} =0V, f=1MHz		214		pF
Output Capacitance	C _{oss}			33		
Reverse Transfer Capacitance	C _{rss}			27		
Total Gate Charge	Q _g	V _{GS} =-4.5V,V _{DS} =-10V,I _D =-1.2A		2.9		nC
Gate-Source Charge	Q _{gs}			0.65		
Gate-Drain Charge	Q _{gd}			0.7		
Turn-on Delay Time	t _{d(on)}	V _{DS} =-10V,V _{GS} =-4.5V, I _D =-1.2A,R _G =3Ω		4.8		ns
Turn-on Rise Time	t _r			22		
Turn-off Delay Time	t _{d(off)}			21		
Turn-off Fall Time	t _f			27.6		

N-Channel MOSFE Curve Characteristics

Fig. 1 - Typical Output Characteristics

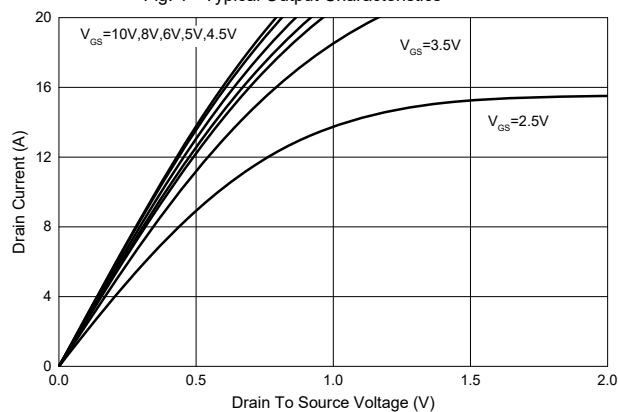


Fig. 2 - Transfer Characteristics

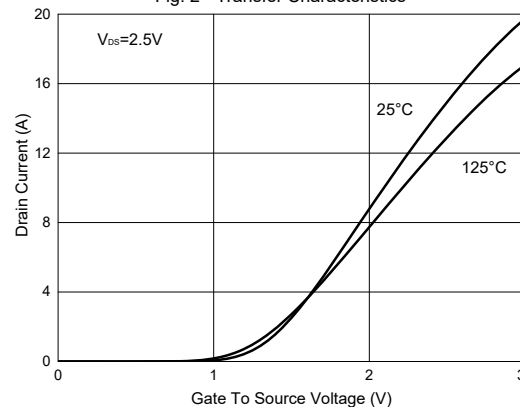


Fig. 3 - $R_{DS(ON)} - V_{GS}$

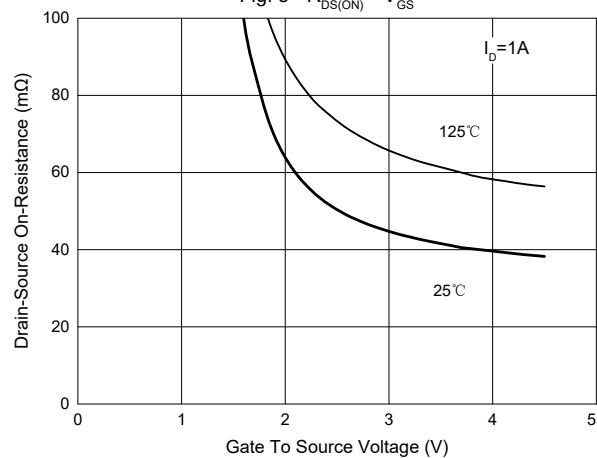


Fig. 4 - $R_{DS(ON)} - I_D$

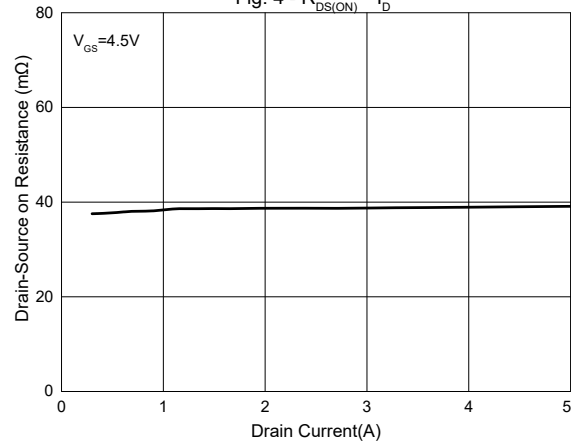


Fig. 5 - Gate Charge

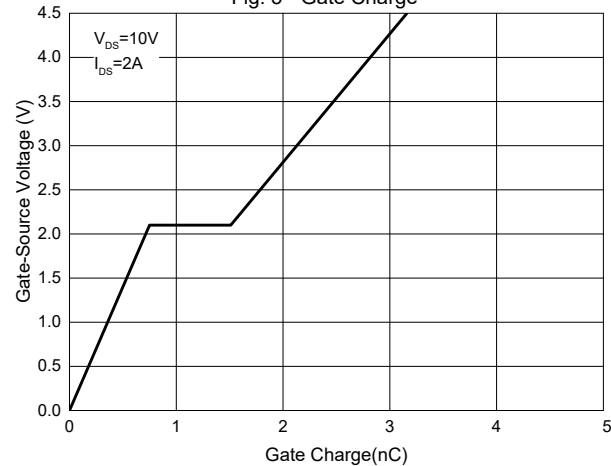
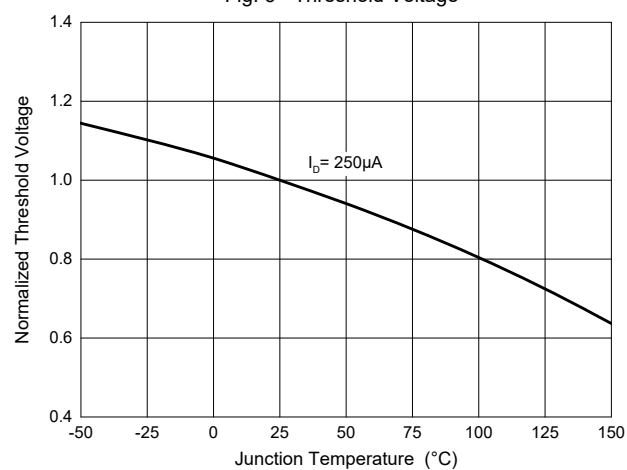


Fig. 6 - Threshold Voltage



N-Channel MOSFE Curve Characteristics

Fig. 7 - Normalized On Resistance Characteristics

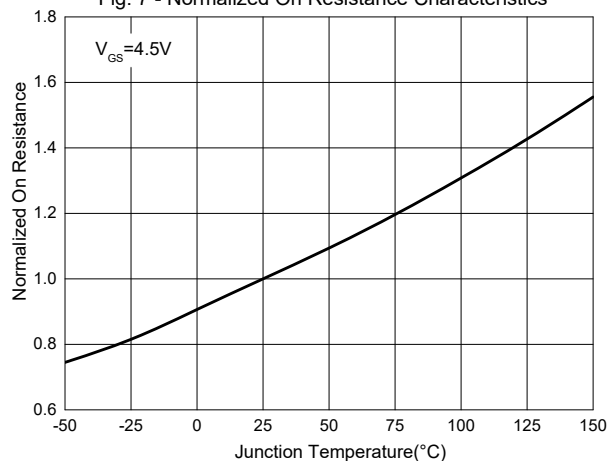


Fig. 8 - $I_S - V_{SD}$

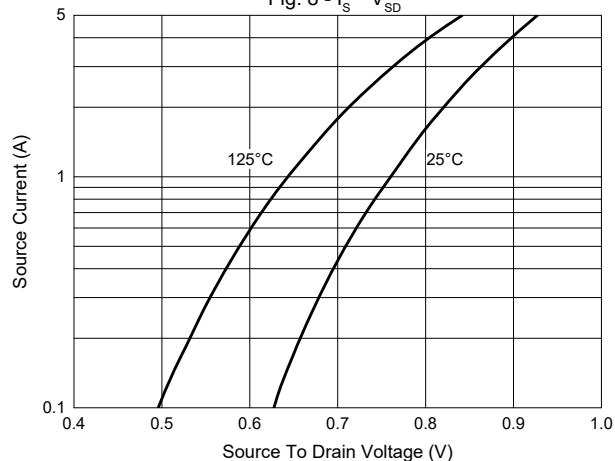


Fig. 9 - Capacitance Characteristics

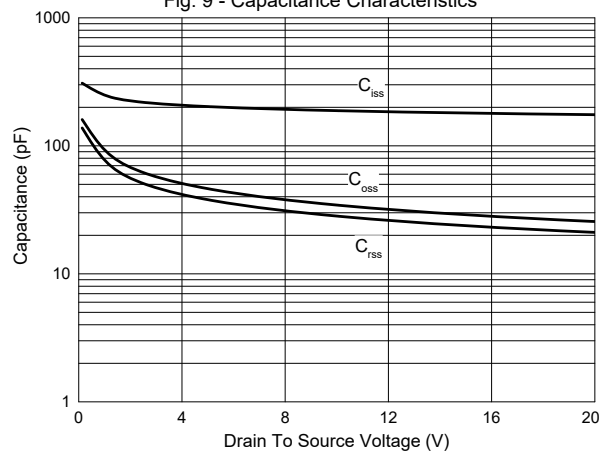


Fig. 10 - Current Dissipation

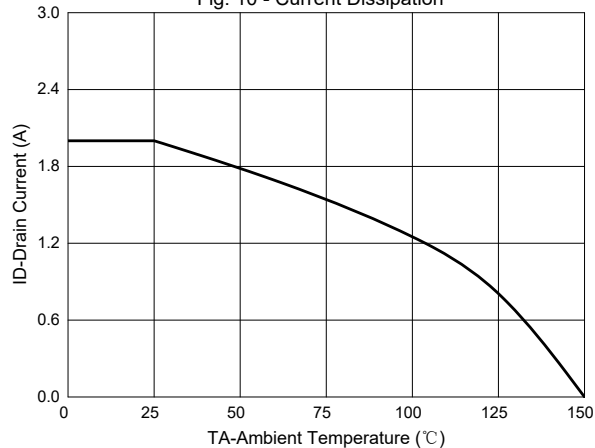
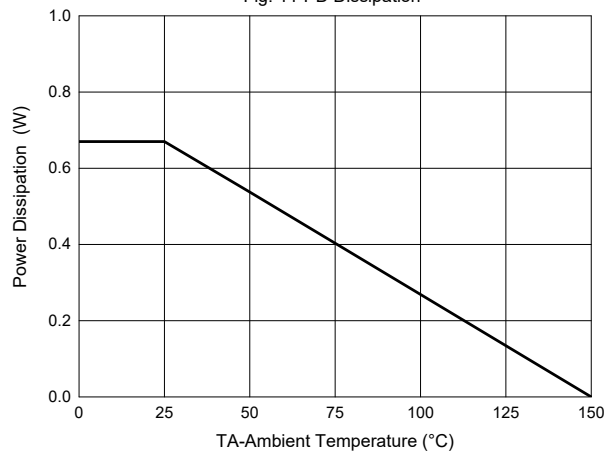


Fig. 11-PD Dissipation



N-Channel MOSFE Curve Characteristics

Fig. 12 - Safe Operation Area

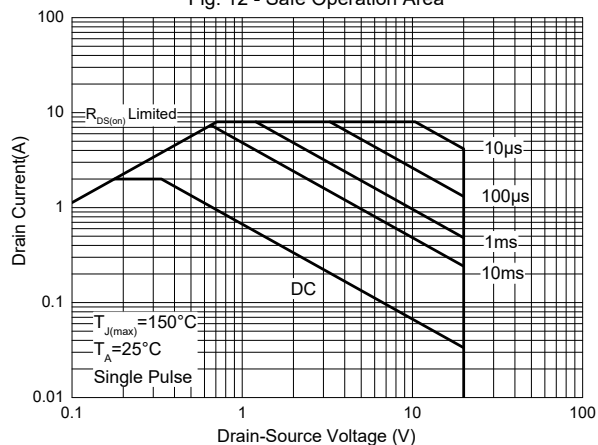
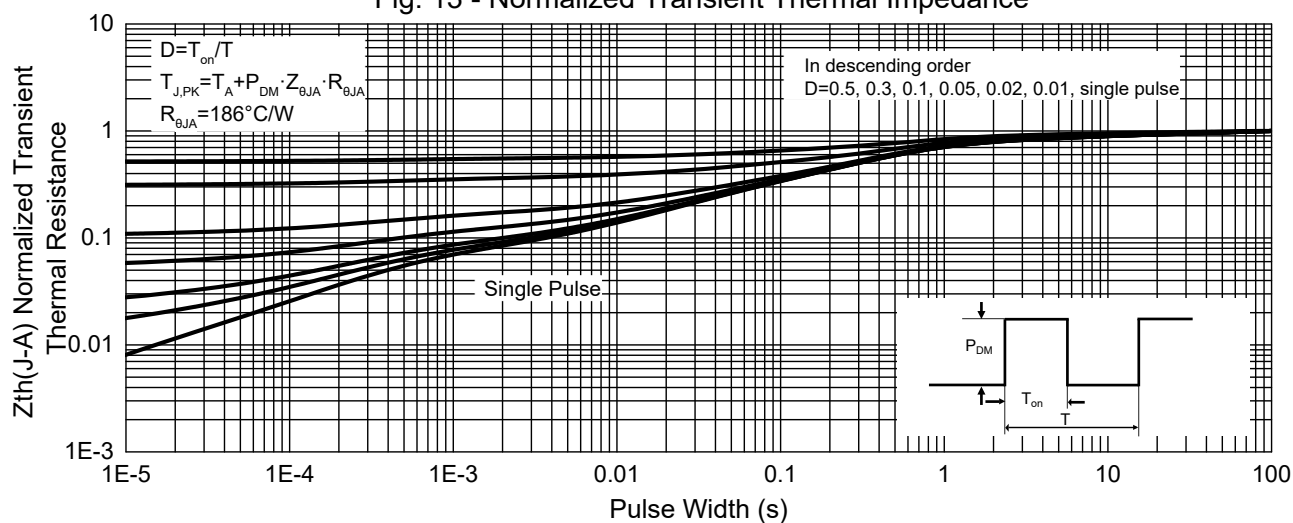


Fig. 13 - Normalized Transient Thermal Impedance



P-Channel MOSFE Curve Characteristics

Fig. 1 - Typical Output Characteristics

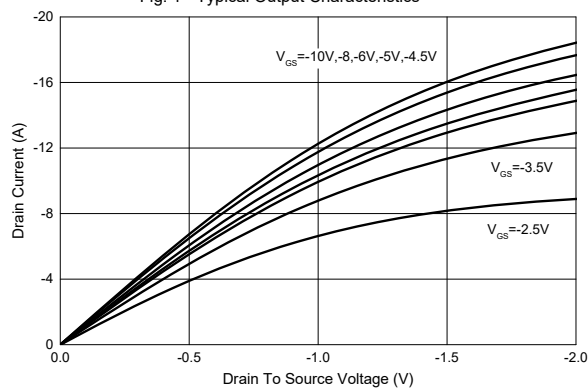


Fig. 2 - Transfer Characteristics

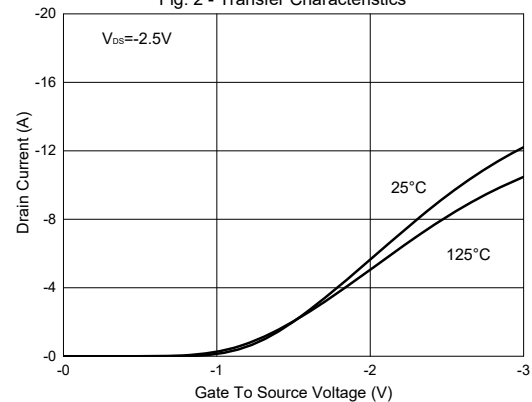


Fig. 3 - $R_{DS(ON)} - V_{GS}$

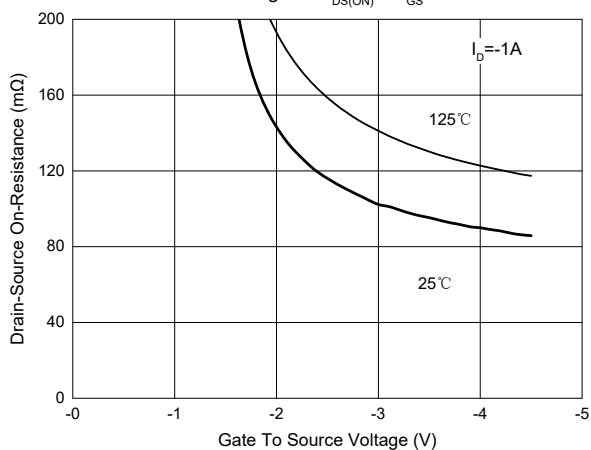


Fig. 4 - $R_{DS(ON)} - I_D$

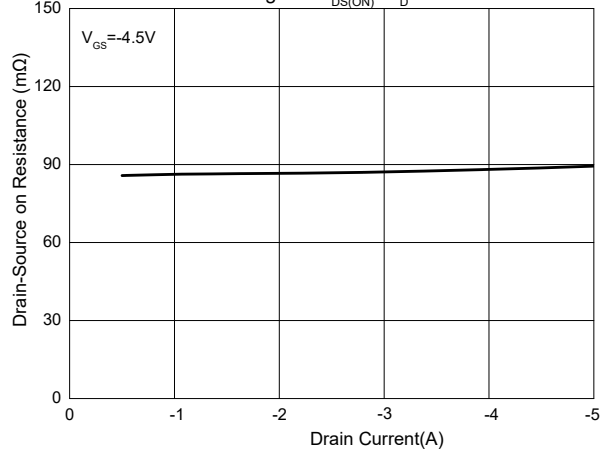


Fig. 5 - Gate Charge

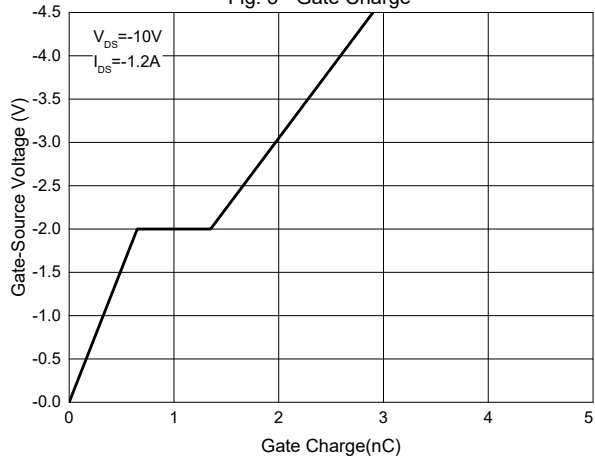
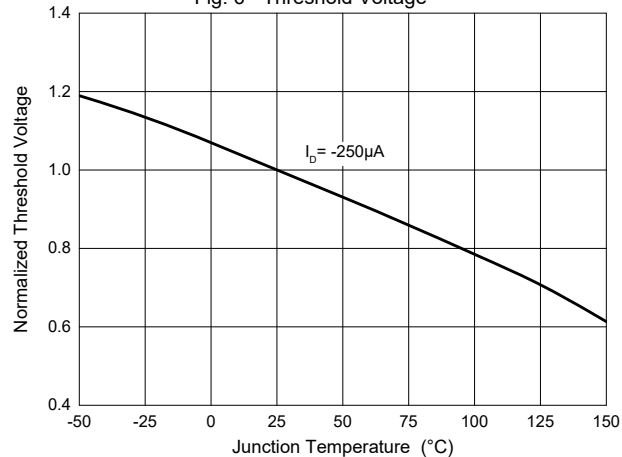


Fig. 6 - Threshold Voltage



P-Channel MOSFE Curve Characteristics

Fig. 7 - Normalized On Resistance Characteristics

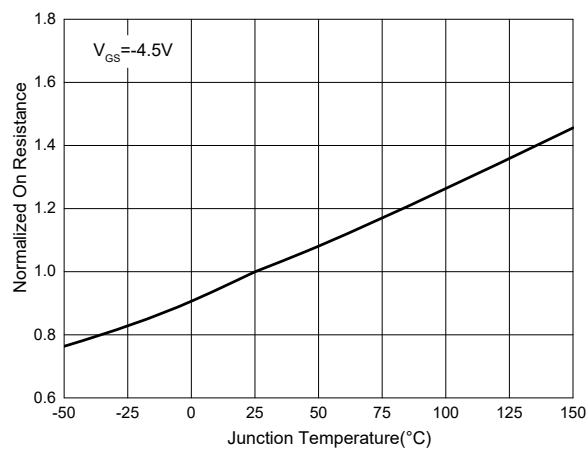


Fig. 8 - $I_S - V_{SD}$

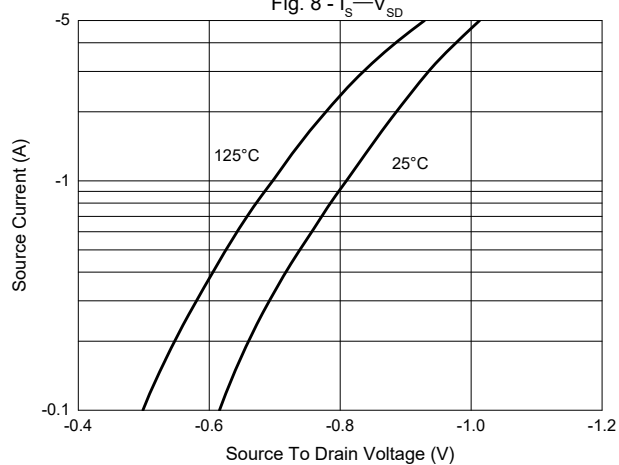


Fig. 9 - Capacitance Characteristics

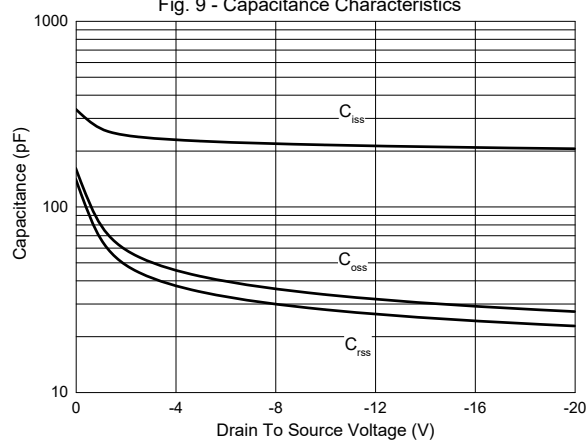


Fig. 10 - Current Dissipation

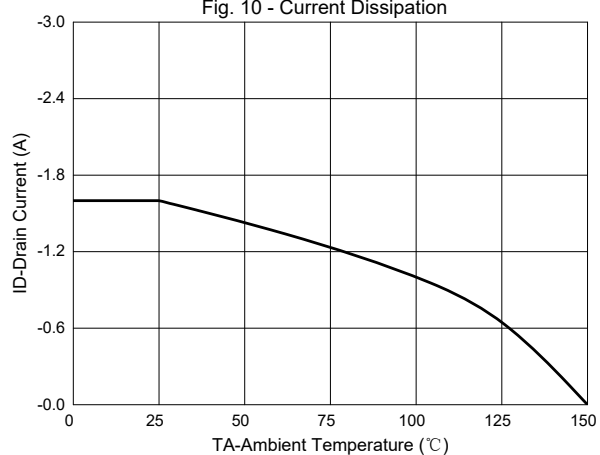
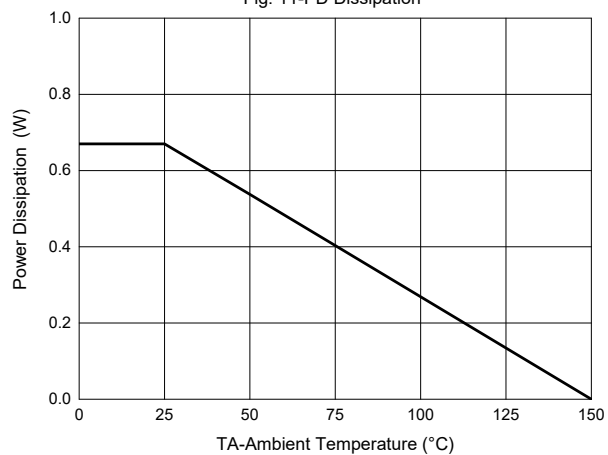


Fig. 11-PD Dissipation



P-Channel MOSFE Curve Characteristics

Fig. 12 - Safe Operation Area

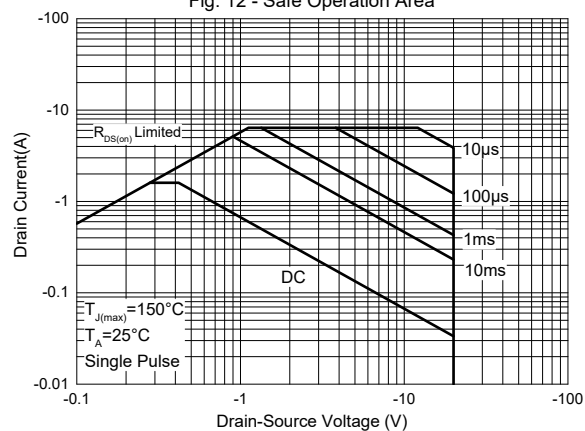
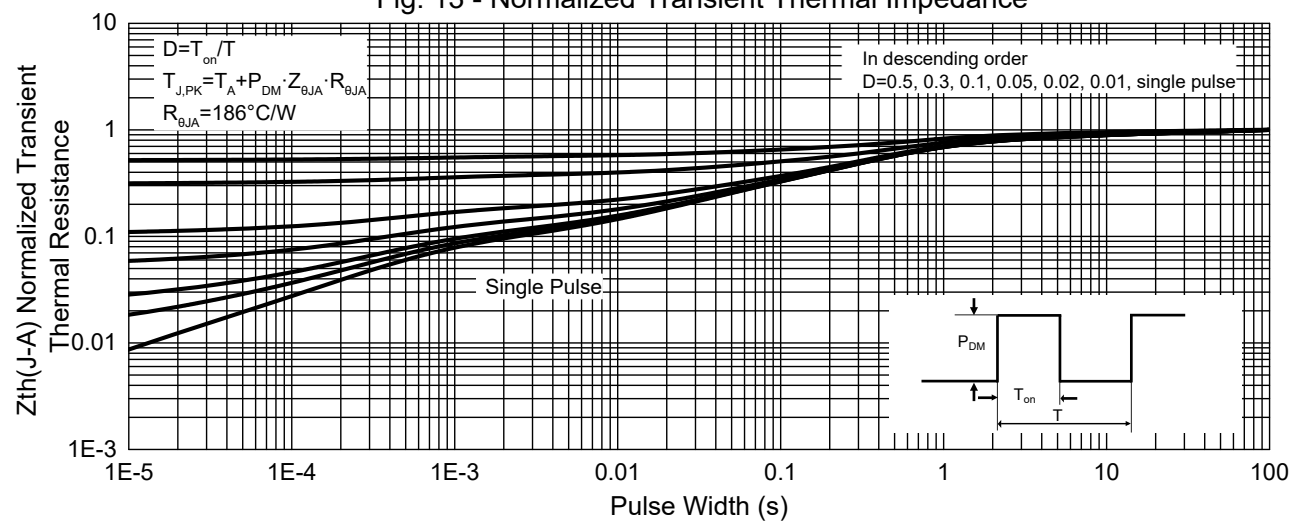


Fig. 13 - Normalized Transient Thermal Impedance



Ordering Information

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

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