

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)

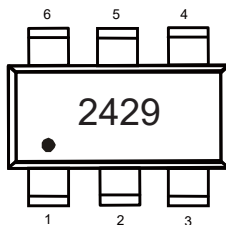
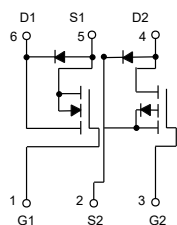
Parameter	Symbol	Rating	Unit
Total Power Dissipation	P_D	670	mW
N-Channel MOSFET			
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	±10	V
Continuous Drain Current	I_D	$T_A=25^\circ\text{C}$	2.0
		$T_A=100^\circ\text{C}$	1.3
Pulsed Drain Current ^(Note 3)	I_{DM}	8.0	A
P-Channel MOSFET			
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	±10	V
Continuous Drain Current	I_D	$T_A=25^\circ\text{C}$	-1.6
		$T_A=100^\circ\text{C}$	-1.0
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 TA=25°C.

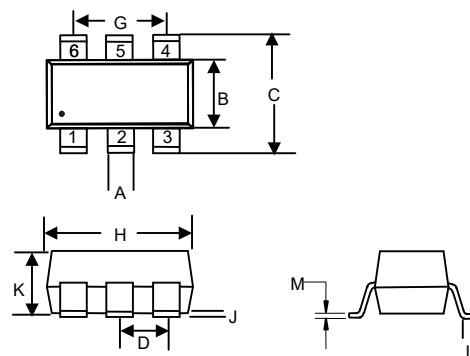
3. Pulse Width Limited by Maximum Junction Temperature.

Internal Structure and Marking Code



Dual N&P-Channel MOSFET

SOT23-6L



DIM	DIMENSIONS				NOTE
	INCHES		MM		
	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	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	20			V
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.55	0.78	1.1	V
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 10V, V_{DS}=0V$			± 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	m Ω
		$V_{GS}=2.5V, I_D=0.6A$		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}	$I_F=2A, di/dt=80A/\mu s$		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	$t_{d(on)}$	$V_{DS}=10V, V_{GS}=4.5V, I_D=2A, R_G=3\Omega$		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	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-20			V
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-0.4	-0.65	-1.0	V
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 10V, V_{DS}=0V$			± 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	m Ω
		$V_{GS}=-2.5V, I_D=-0.6A$		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	$t_{d(on)}$	$V_{DS}=-10V, V_{GS}=-4.5V, I_D=-1.2A, R_G=3\Omega$		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

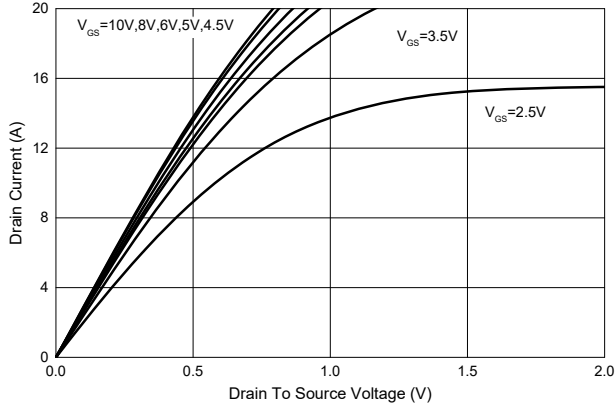


Fig. 2 - Transfer Characteristics

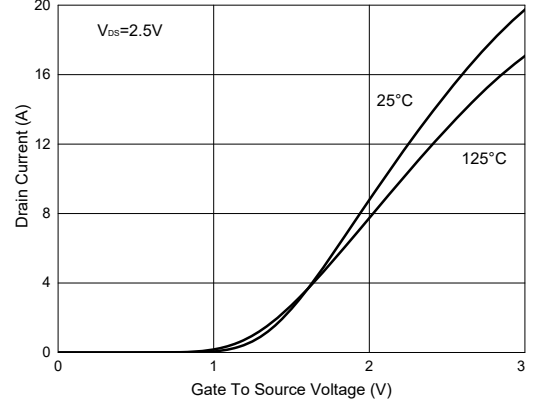


Fig. 3 - $R_{DS(ON)} - V_{GS}$

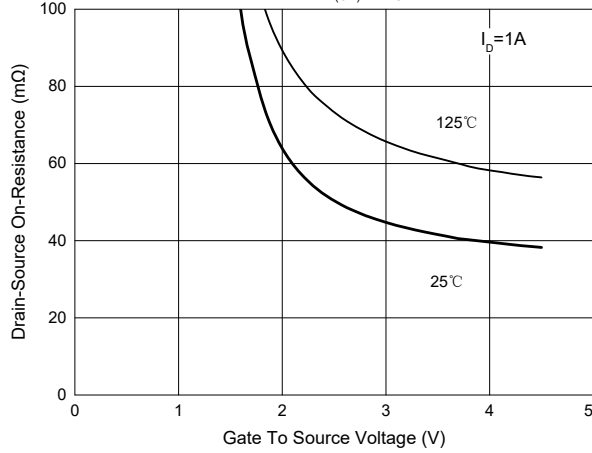


Fig. 4 - $R_{DS(ON)} - I_D$

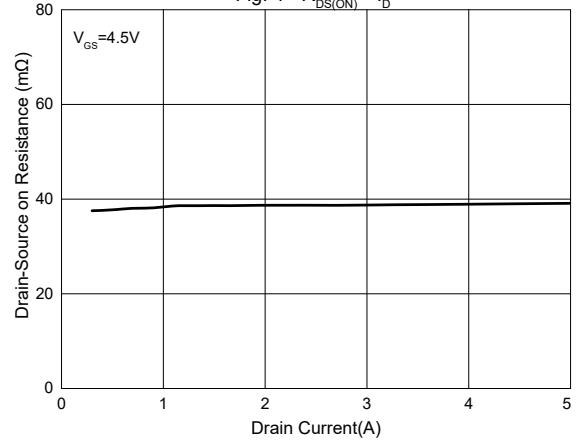


Fig. 5 - Gate Charge

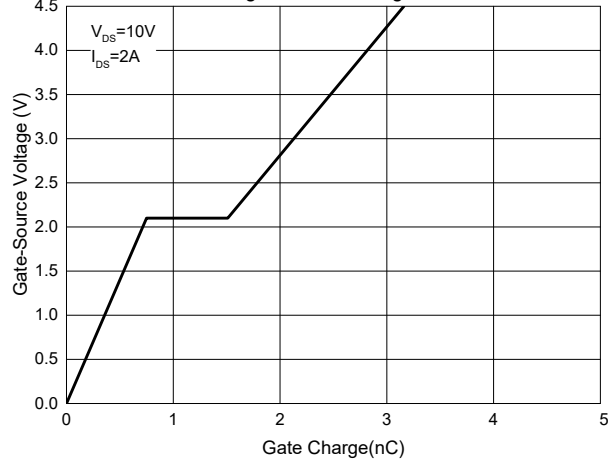
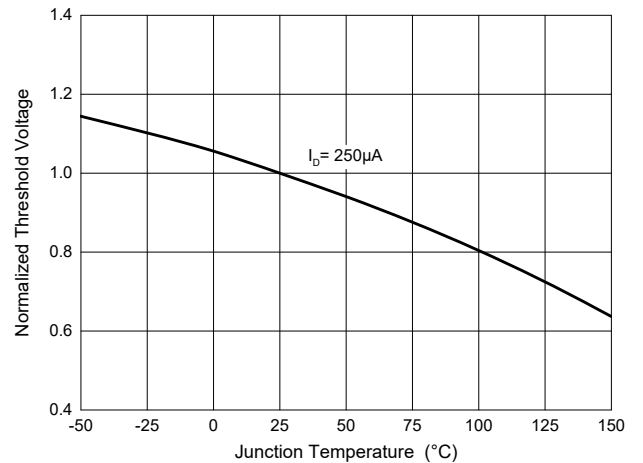


Fig. 6 - Threshold Voltage



N-Channel MOSFE Curve Characteristics

Fig. 7 - Normalized On Resistance Characteristics

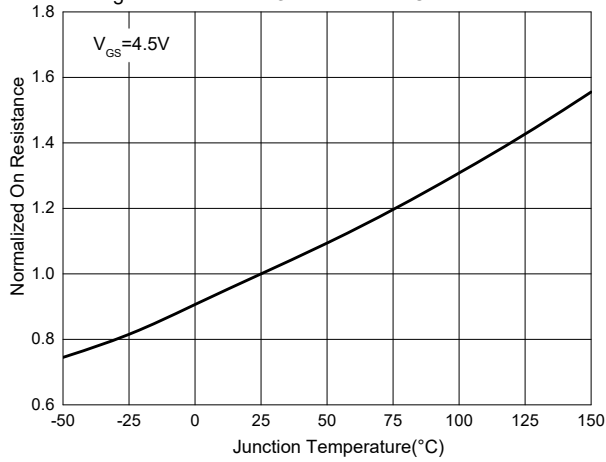


Fig. 8 - $I_S - V_{SD}$

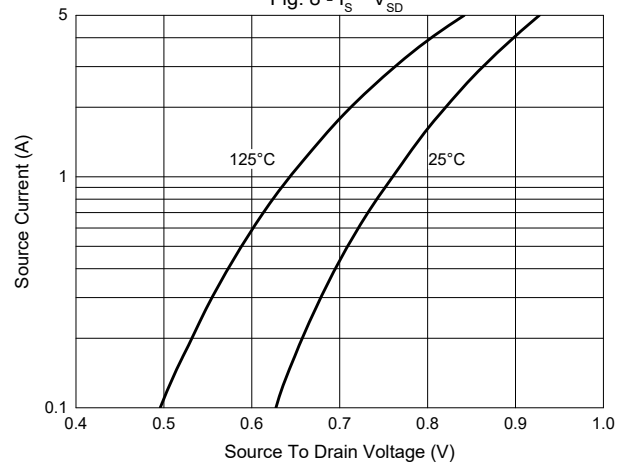


Fig. 9 - Capacitance Characteristics

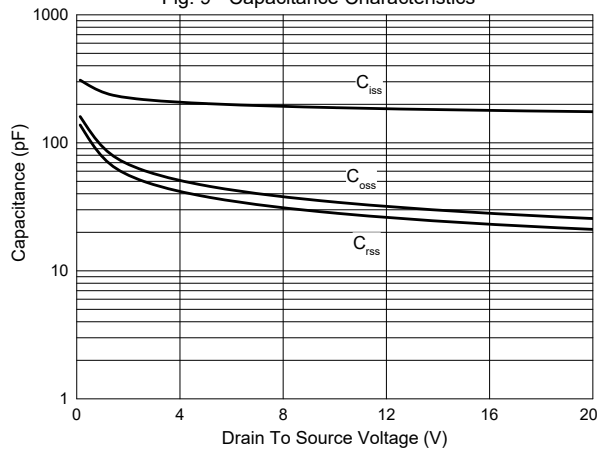


Fig. 10 - Current Dissipation

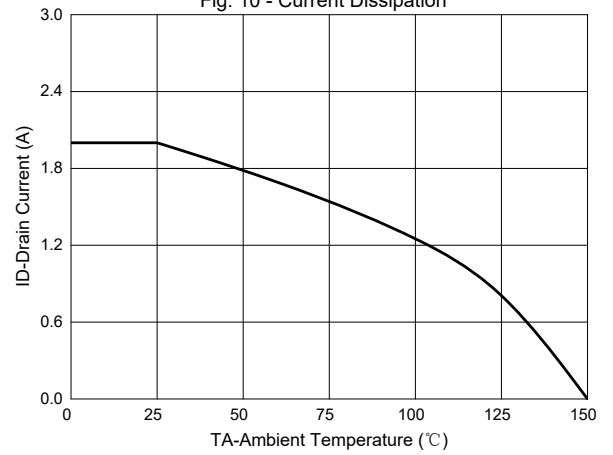
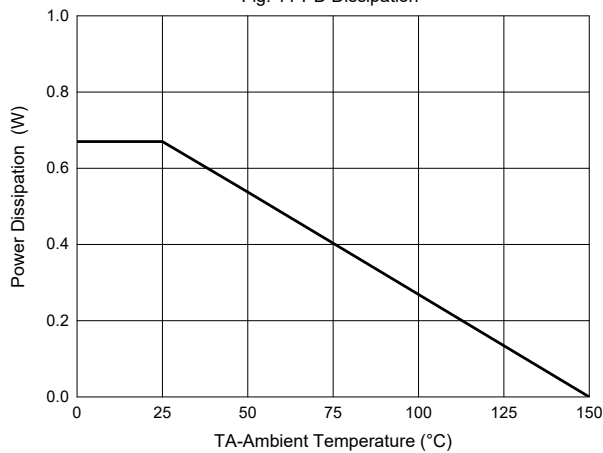


Fig. 11-PD Dissipation



N-Channel MOSFE Curve Characteristics

Fig. 12 - Safe Operation Area

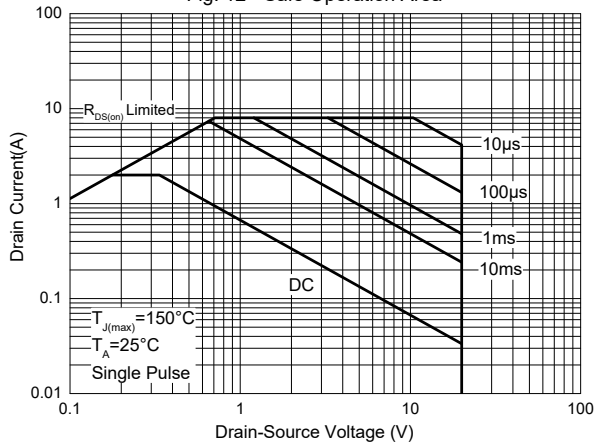
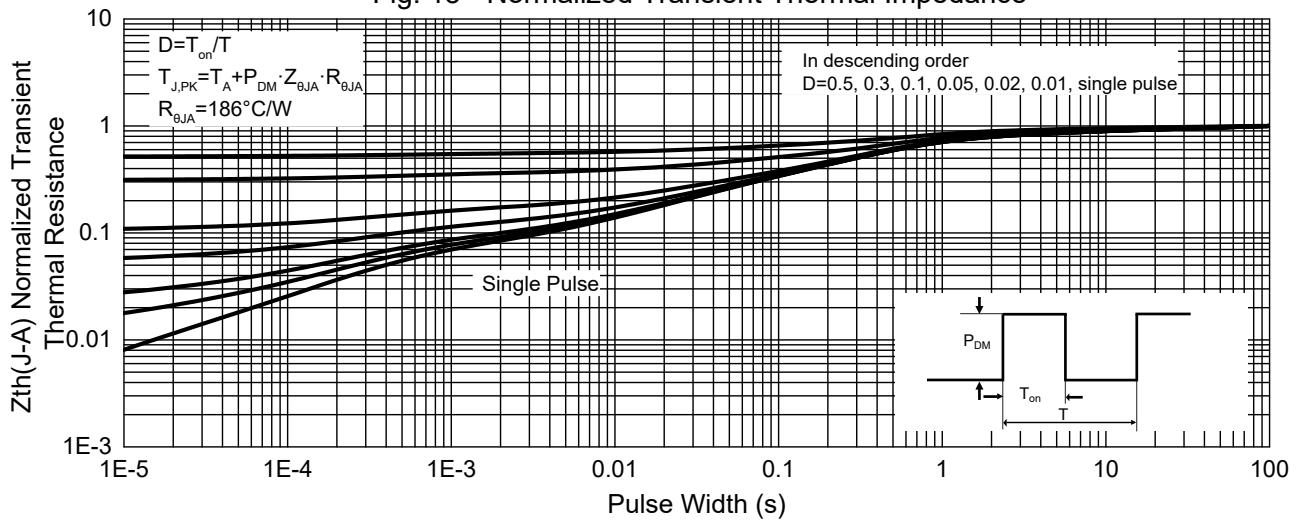


Fig. 13 - Normalized Transient Thermal Impedance



P-Channel MOSFE Curve Characteristics

Fig. 1 - Typical Output Characteristics

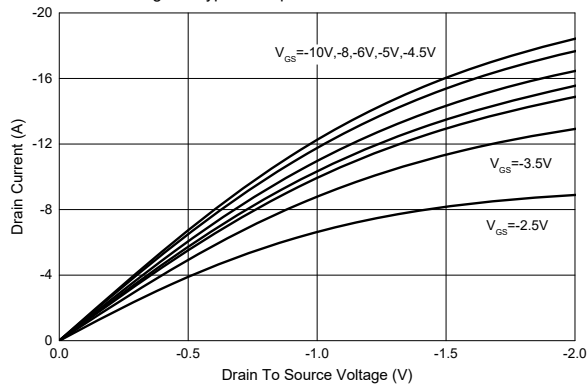


Fig. 2 - Transfer Characteristics

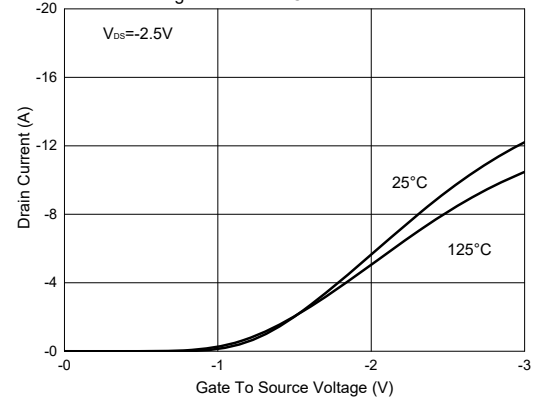


Fig. 3 - $R_{DS(ON)} - V_{GS}$

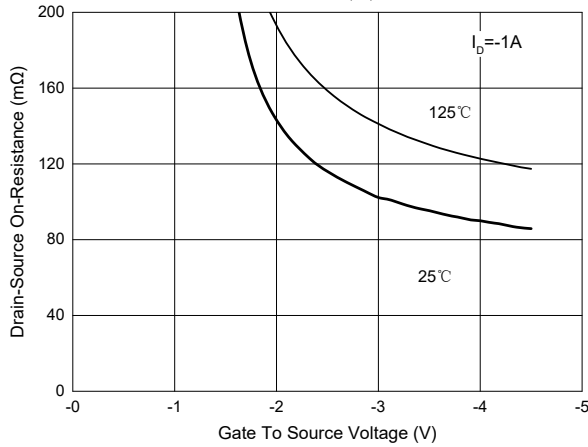


Fig. 4 - $R_{DS(ON)} - I_D$

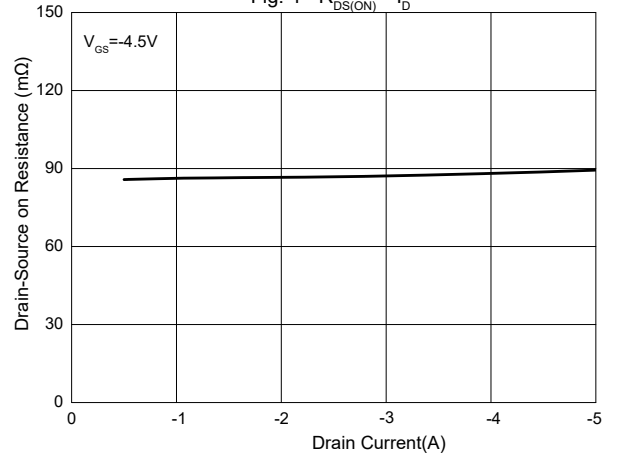


Fig. 5 - Gate Charge

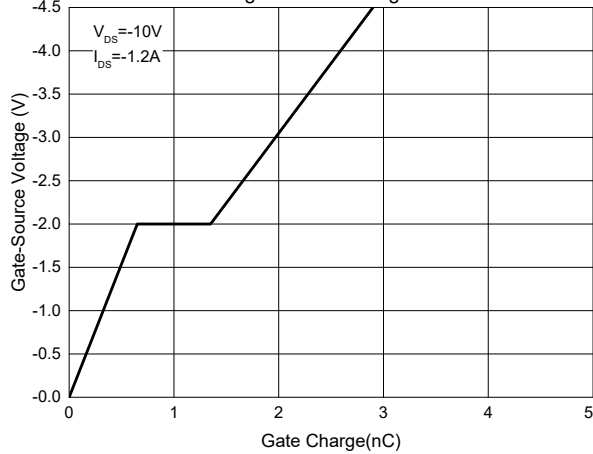
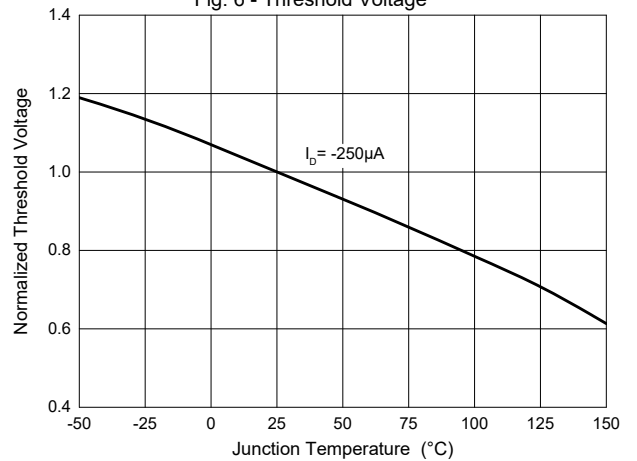


Fig. 6 - Threshold Voltage



P-Channel MOSFE Curve Characteristics

Fig. 7 - Normalized On Resistance Characteristics

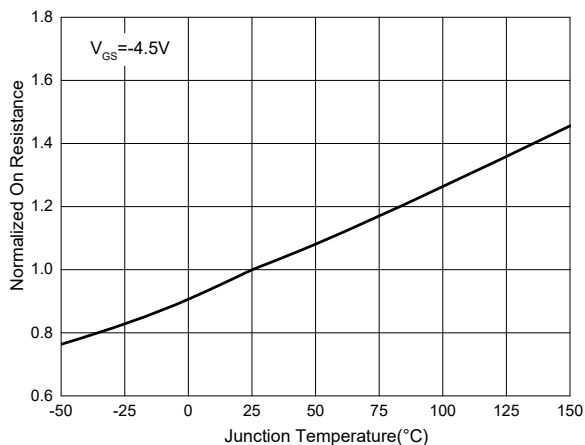


Fig. 8 - $I_S - V_{SD}$

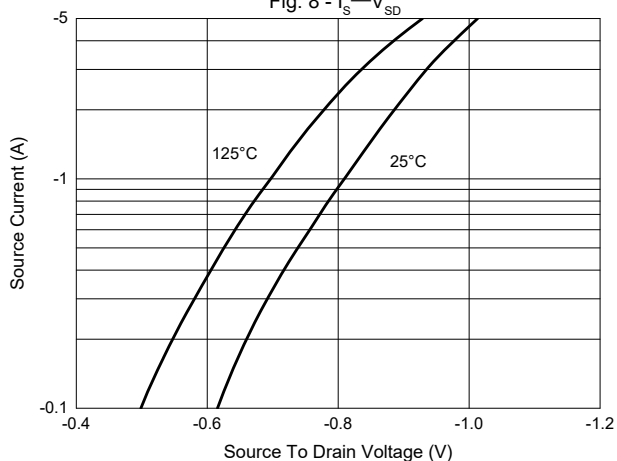


Fig. 9 - Capacitance Characteristics

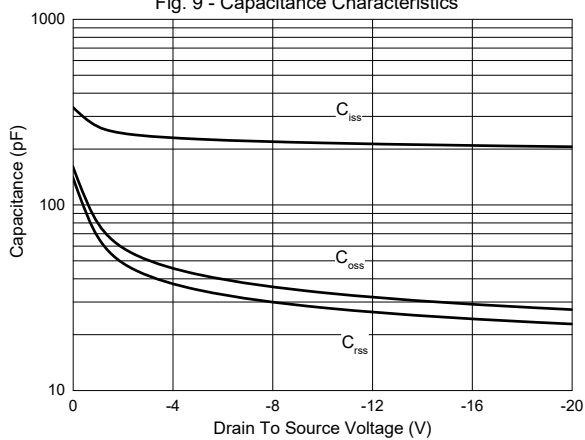


Fig. 10 - Current Dissipation

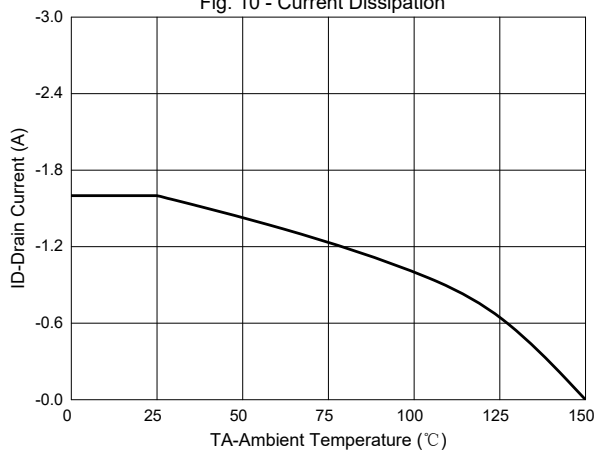
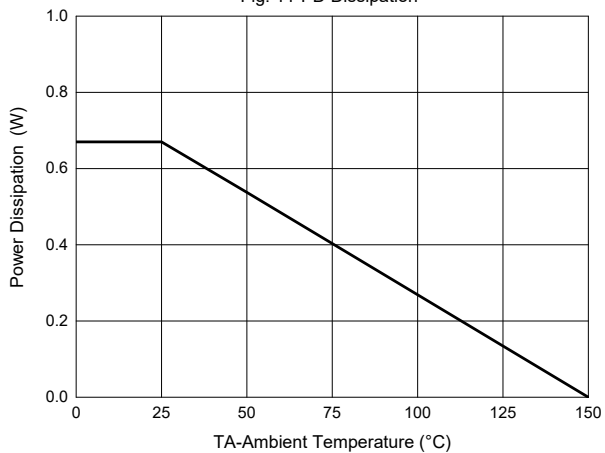


Fig. 11-PD Dissipation



P-Channel MOSFE Curve Characteristics

Fig. 12 - Safe Operation Area

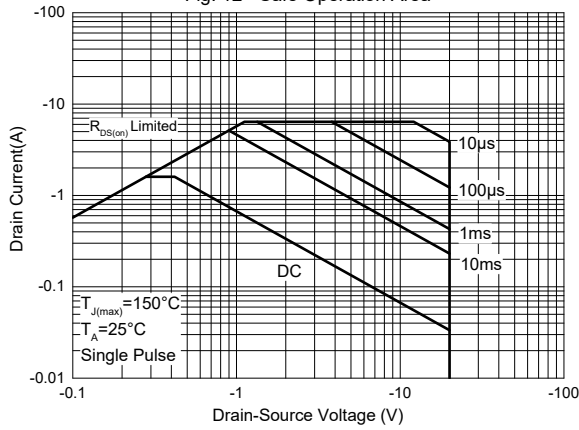
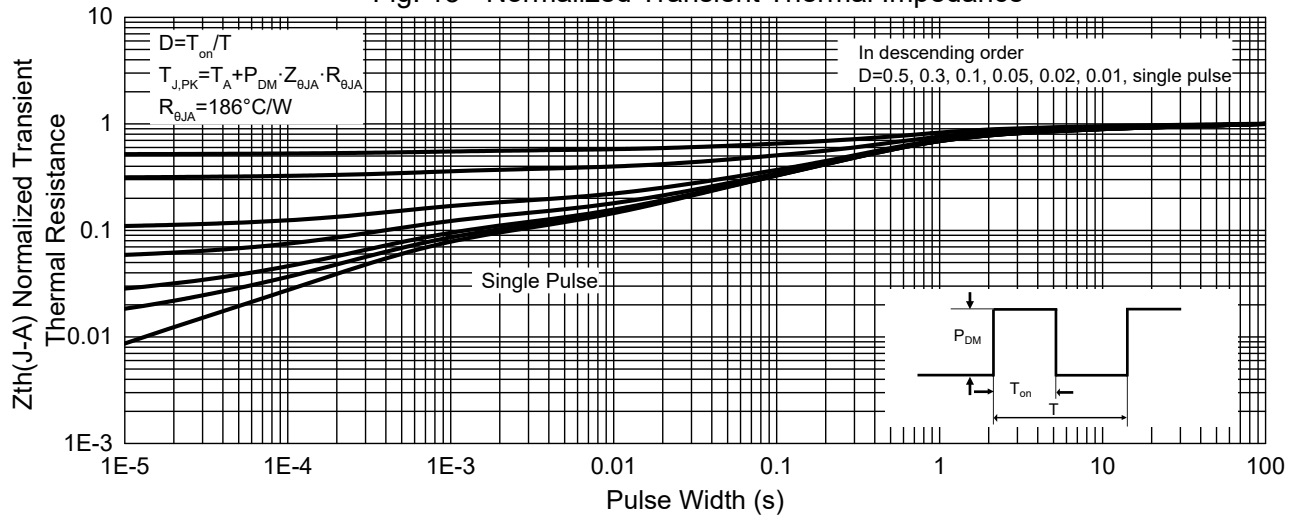


Fig. 13 - Normalized Transient Thermal Impedance



Ordering Information

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

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