

Features

- Low RDS(on)
- Operated at Low Logic Level Gate Drive
- ESD Protected up to 2KV (HBM)
- 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

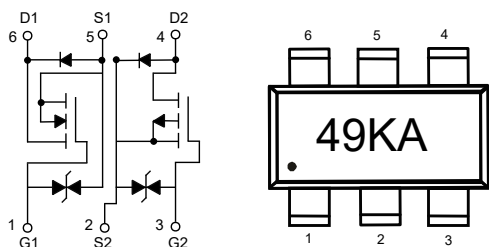
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 100°C/W Junction to Ambient^(Note 2)

Parameter	Symbol	Rating	Unit
Total Power Dissipation	P _D	1.25	W
N-Channel MOSFET			
Drain-Source Voltage	V _{DS}	20	V
Gate-Source Voltage	V _{GS}	±12	V
Continuous Drain Current	I _D	1.2	A
Pulsed Drain Current ^(Note 3)	I _{DM}	4	A
P-Channel MOSFET			
Drain-Source Voltage	V _{DS}	-20	V
Gate-Source Voltage	V _{GS}	±12	V
Continuous Drain Current	I _D	-1	A
Pulsed Drain Current ^(Note 3)	I _{DM}	-3	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.

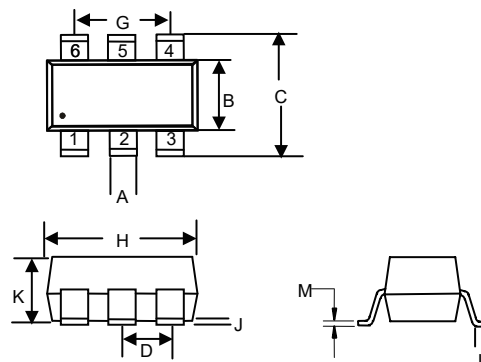
2. Device Mounted on FR-4 Substrate PC Board, 2oz Copper, with 1inch² Copper Plate.
3. Pulse Width Limited by Maximum Junction Temperature.

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-Source Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 10V$			± 10	μA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=20V, V_{GS}=0V$			1	μA
Gate-Threshold Voltage ^(Note 4)	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.35	0.72	1.1	V
Drain-Source On-Resistance ^(Note 4)	$R_{DS(on)}$	$V_{GS}=4.5V, I_D=0.65A$		188	300	m Ω
		$V_{GS}=2.5V, I_D=0.55A$		270	400	
		$V_{GS}=1.8V, I_D=0.2A$		455	700	
Forward transconductance	g_{FS}	$V_{DS}=10V, I_D=0.65A$	0.8			S
Diode Forward Voltage ^(Note 4)	V_{SD}	$V_{GS}=0V, I_S=0.65A$			1.2	V
Dynamic Characteristics^(Note 5,6)						
Input Capacitance	C_{iss}	$V_{DS}=16V, V_{GS}=0V, f=1MHz$		33		pF
Output Capacitance	C_{oss}			20		
Reverse Transfer Capacitance	C_{rss}			10		
Total Gate Charge	Q_g	$V_{GS}=4.5V, V_{DS}=10V, I_D=1A$		800		pC
Gate-Source Charge	Q_{gs}			290		
Gate-Drain Charge	Q_{gd}			160		
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=4.5V, V_{DS}=10V, I_{DS}=0.5A, R_G=10\Omega$		4		ns
Turn-On Rise Time	t_r			18		
Turn-Off Delay Time	$t_{d(off)}$			11.6		
Turn-Off Fall Time	t_f			24		

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 ^(Note 4)	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-0.35	-0.64	-1.1	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-20V, V_{GS}=0V$			-1.0	μA
Gate-body Leakage Current	I_{GSS}	$V_{GS}=\pm 10V, V_{DS}=0V$			± 10	μA
Drain-Source On-Resistance ^(Note 4)	$R_{DS(on)}$	$V_{GS}=-4.5V, I_D=-1A$		0.62	0.85	Ω
		$V_{GS}=-2.5V, I_D=-0.8A$		0.91	1.2	
		$V_{GS}=-1.8V, I_D=-0.2A$		1.4	2.0	
Forward transconductance	g_{FS}	$V_{DS}=-10V, I_D=-1A$	0.8			S
Diode Forward Voltage ^(Note 4)	V_{SD}	$V_{GS}=0V, I_S=-1A$			-1.2	V
Dynamic Characteristics^(Note 5,6)						
Input Capacitance	C_{iss}	$V_{DS}=-16V, V_{GS}=0V, f=1MHz$		40		pF
Output Capacitance	C_{oss}			16		
Reverse Transfer Capacitance	C_{rss}			11		
Total Gate Charge	Q_g	$V_{GS}=-4.5V, V_{DS}=-10V, I_D=-1A$		860		pC
Gate-Source Charge	Q_{gs}			320		
Gate-Drain Charge	Q_{gd}			200		
Turn-on Delay Time	$t_{d(on)}$	$V_{DS}=-10V, V_{GS}=-4.5V, I_D=-500mA, R_G=10\Omega$		3.8		ns
Turn-off Delay Time	$t_{d(off)}$			9.4		
Rise Time	t_r			19		
Fall Time	t_f			23		

Note 4. Pulse Test : Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.

5. Switching characteristics are independent of operating junction temperature.

6. Guaranteed by Design, Not Subject to Production Testing.

Curve Characteristics(N-Channel)

Fig. 1 - Output Characteristics

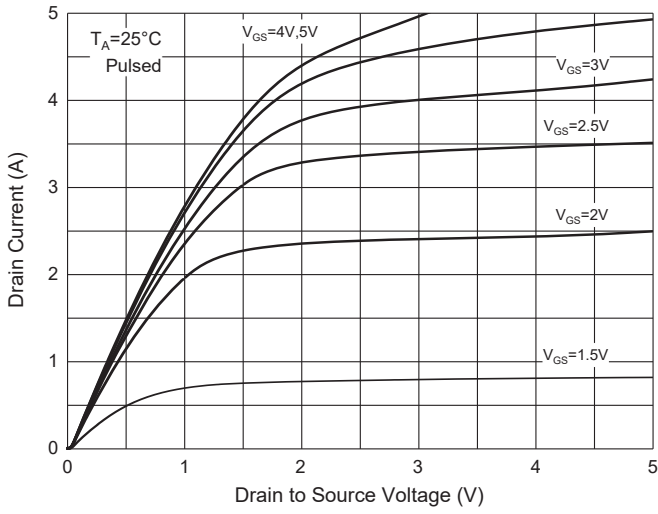


Fig. 2 - Transfer Characteristics

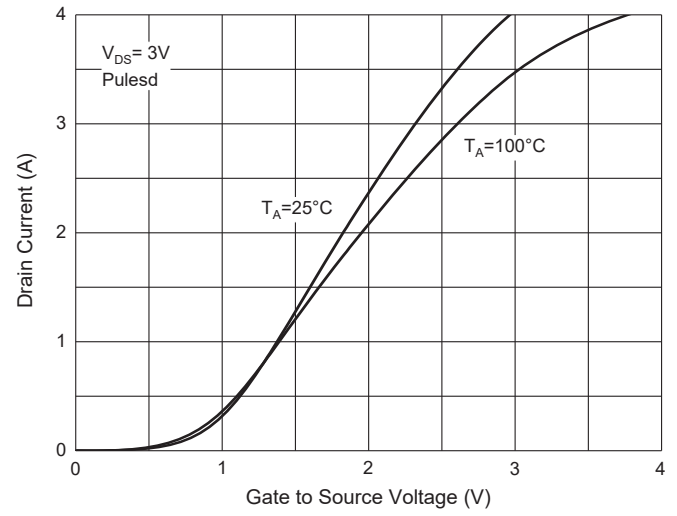


Fig. 3 - $R_{DS(ON)} - I_D$

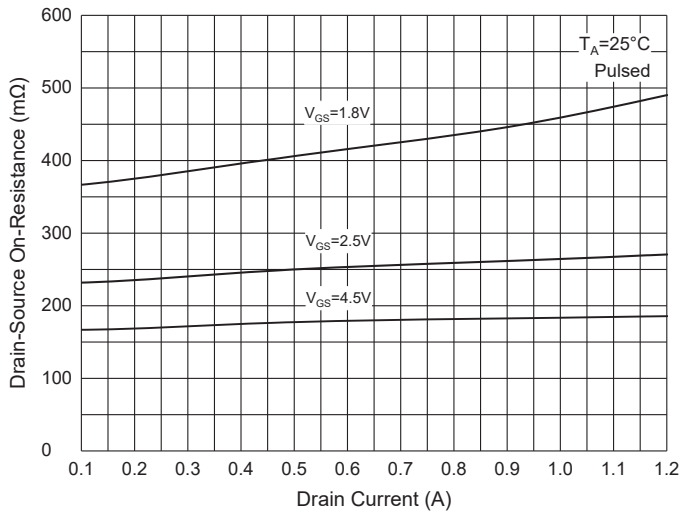


Fig. 4 - $R_{DS(ON)} - V_{GS}$

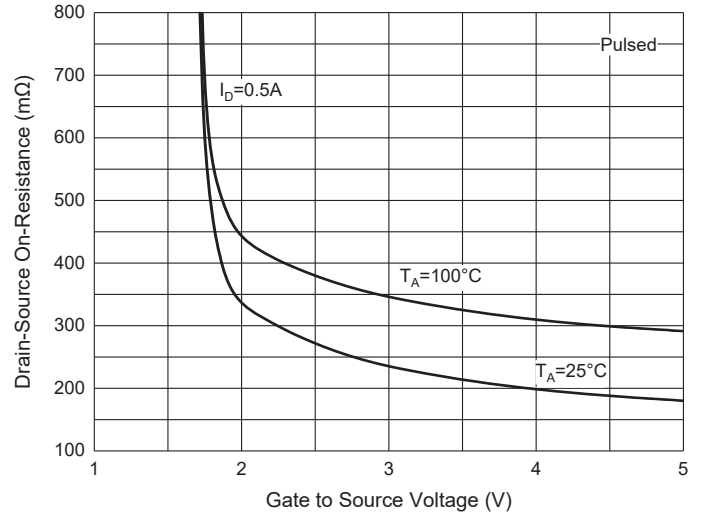


Fig. 5 - $I_S - V_{SD}$

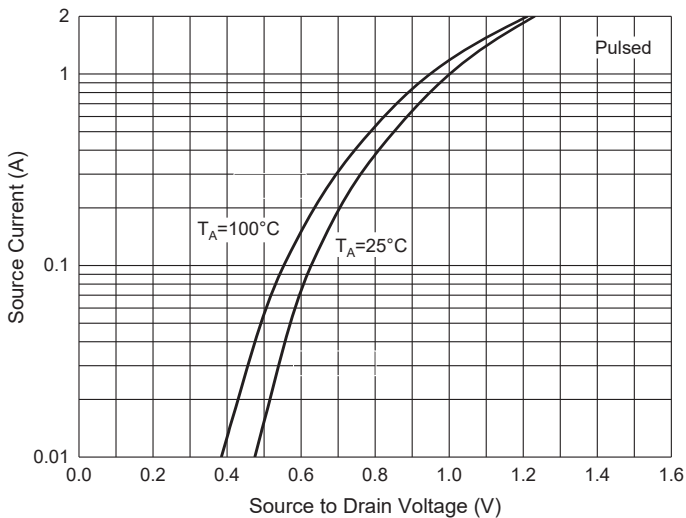
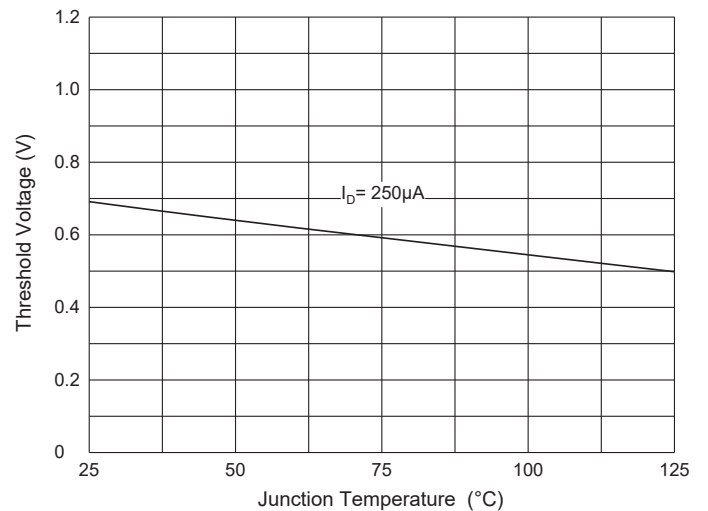


Fig. 6 - Threshold Voltage



Curve Characteristics(N-Channel)

Fig. 7 - Capacitance Characteristics

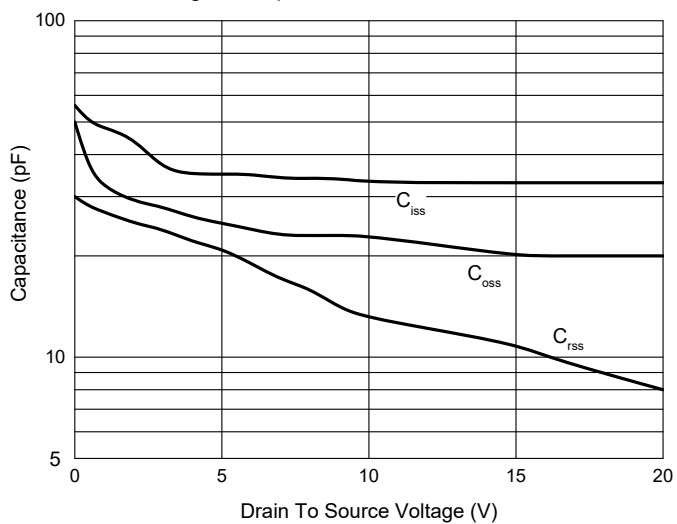
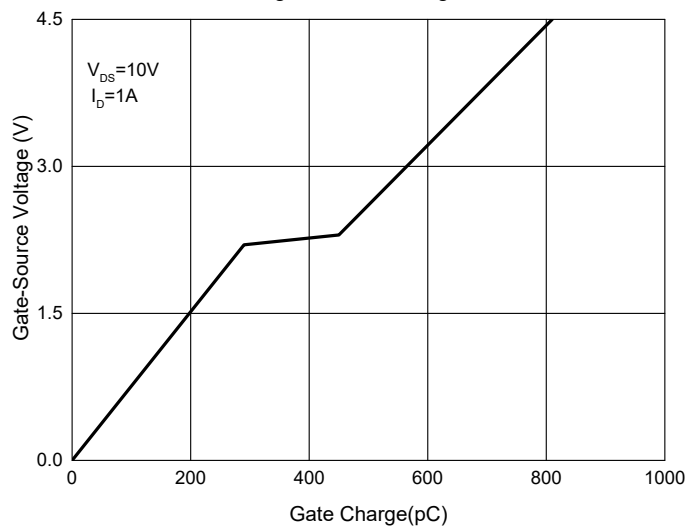


Fig. 8 - Gate Charge



Curve Characteristics(P-Channel)

Fig. 1 - Typical Output Characteristics

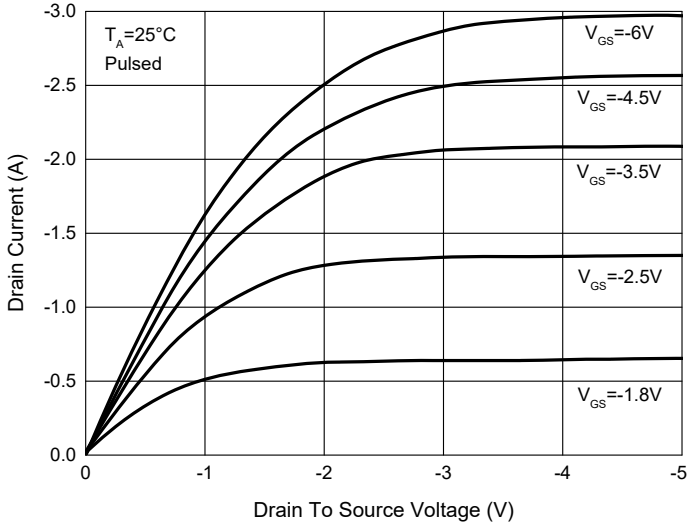


Fig. 2 - Transfer Characteristics

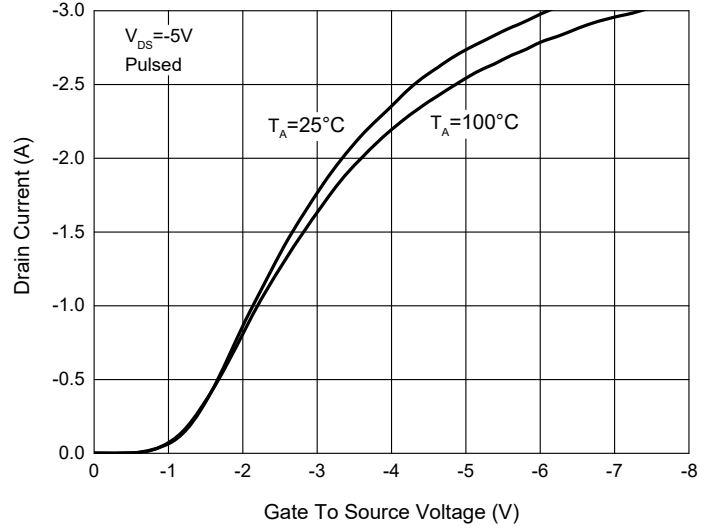


Fig. 3 - $R_{DS(ON)} - I_D$

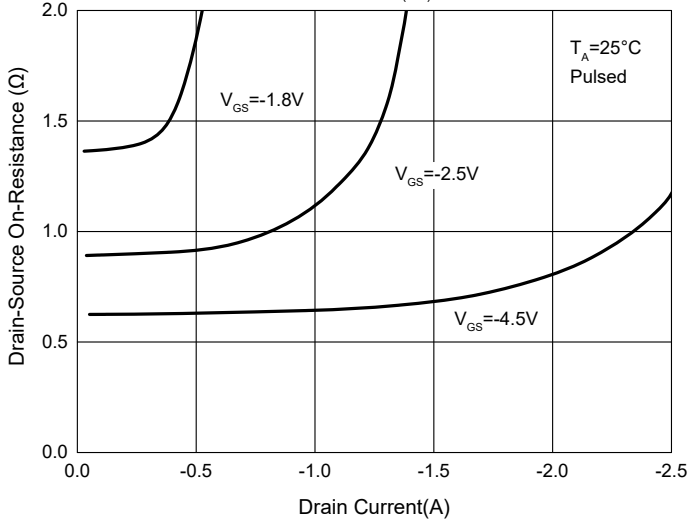


Fig. 4 - $R_{DS(ON)} - V_{GS}$

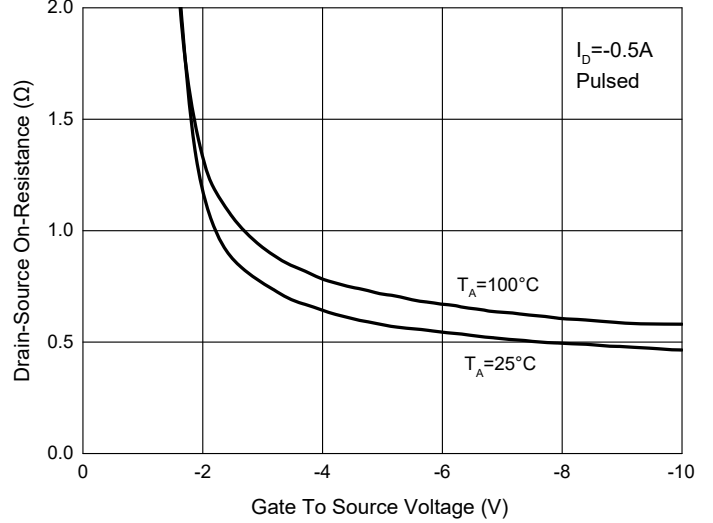


Fig. 5 - $I_S - V_{SD}$

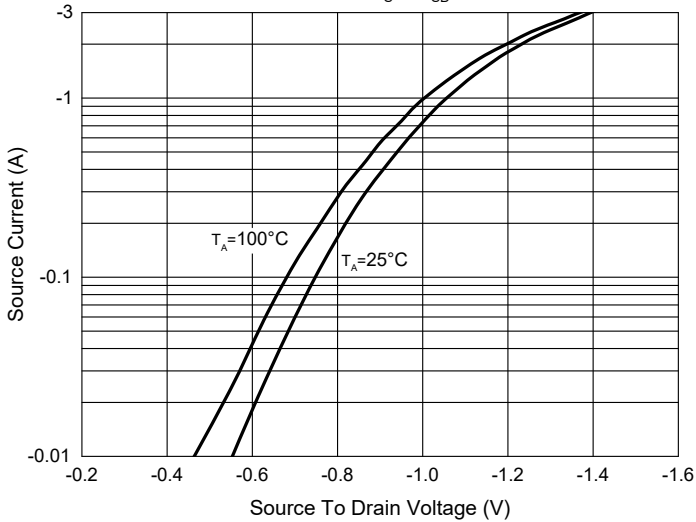
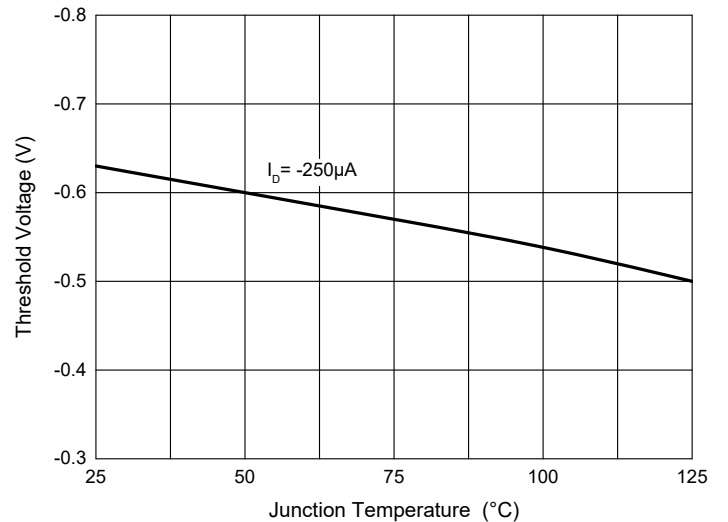


Fig. 6 - Threshold Voltage



Curve Characteristics(P-Channel)

Fig. 7 - Capacitance Characteristics

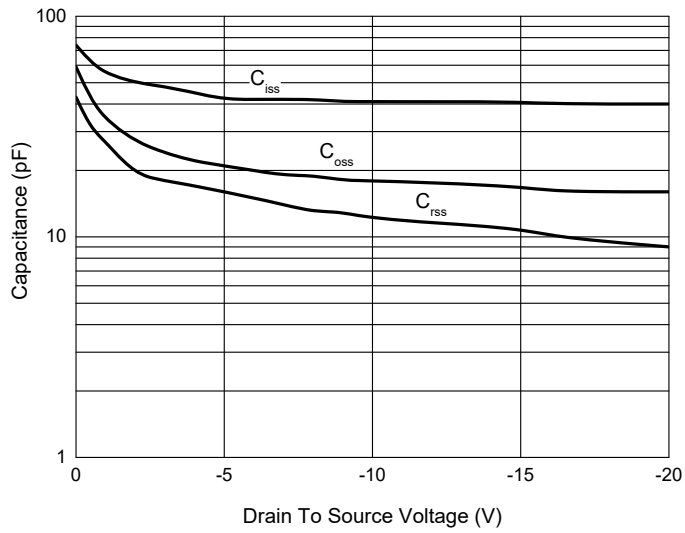
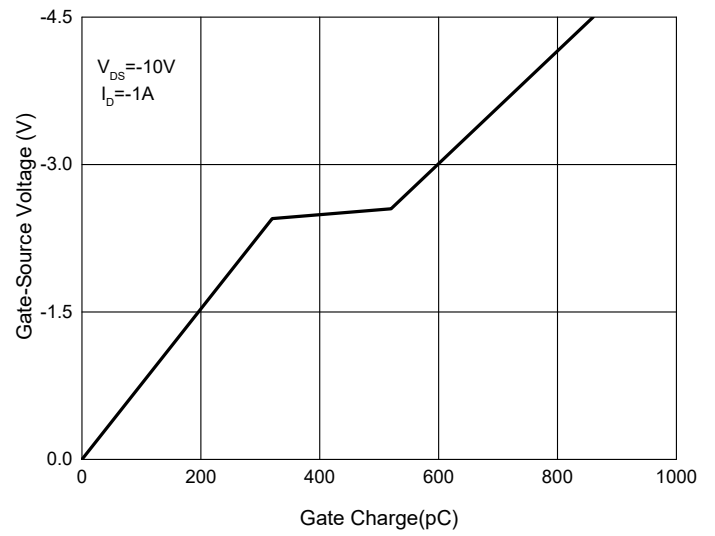


Fig. 8 - Gate Charge



Ordering Information

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

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