Features

- High-Side Switching
- Low Threshold
- 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)

Dual N&P-Channel MOSFET

Maximum Ratings

- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 833°C/W Junction to Ambient(Note 2)

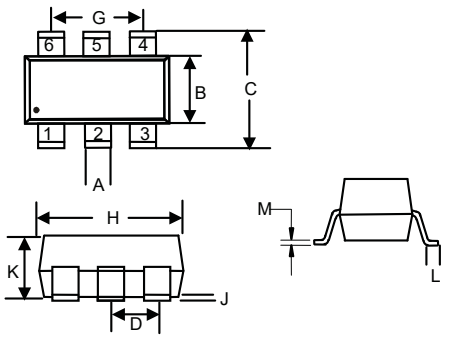
Parameter	Symbol	Rating	Unit
Total Power Dissipation	P_D	150	mW
N-Channel MOSFET			
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Volltage	V_{GS}	±20	V
Continuous Drain Current	I_D	0.34	A
Pulsed Drain Current(Note 3)	I_{DM}	1.36	A
P-Channel MOSFET			
Drain-Source Voltage	V_{DS}	-50	V
Gate-Source Volltage	V_{GS}	±20	V
Continuous Drain Current	I_D	-0.18	A
Pulsed Drain Current(Note 3)	I_{DM}	-0.7	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. Surface Mounted on FR-4 Board Using Minimum Pad Size,1oz Copper.

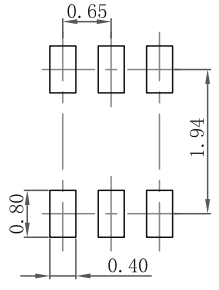
3. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature.

SOT-363

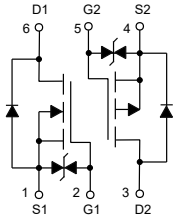


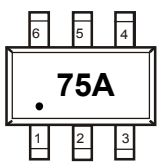
DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.006	0.014	0.15	0.35	
B	0.045	0.053	1.15	1.35	
C	0.079	0.096	2.00	2.45	
D	0.026		0.65		TYP.
G	0.047	0.055	1.20	1.40	
H	0.071	0.087	1.80	2.20	
J	-----	0.004	-----	0.10	
K	0.031	0.043	0.80	1.10	
L	0.010	0.018	0.26	0.46	
M	0.003	0.006	0.08	0.15	

Suggested Solder Pad Layout



Internal Structure and Marking Code





Electrical Characteristics @ 25°C (Unless Otherwise Specified)

N-Channel

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=250μA	60			V
Gate-Source Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS}=±20V			±10	μA
		V_{DS}=0V, V_{GS}=±10V			±200	nA
		V_{DS}=0V, V_{GS}=±5V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=48V, V_{GS}=0V			1	μA
Gate-Threshold Voltage(Note 4)	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=1mA	1	1.3	2.5	V
Drain-Source On-Resistance(Note 4)	$R_{DS(on)}$	V_{GS}=4.5V, I_D=0.2A		1.1	5.3	Ω
		V_{GS}=10V, I_D=0.5A		0.9	5	
Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_S=0.3A			1.5	V
Dynamic Characteristics(Note 5)						
Input Capacitance	C_{iss}	V_{DS}=10V,V_{GS}=0V,f =1MHz			40	pF
Output Capacitance	C_{oss}				30	
Reverse Transfer Capacitance	C_{rss}				10	
Switching Characteristics(Note 5)						
Turn-On Delay Time	$t_{d(on)}$	V_{GS}=10V, V_{DS}=50V, R_L=250Ω, R_{GEN}=10Ω			10	ns
Turn-Off Delay Time	$t_{d(off)}$				15	
Reverse recovery time	t_{rr}	I_S=300mA, di/dt=-100A/s, V_{GS}=0V, V_R=25V		30		ns
Recovered charge	Q_r			30		nC

Electrical Characteristics @ 25°C (Unless Otherwise Specified)

P-Channel

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=-250μA	-50			V
Gate-Source Leakage Current	I_{GSS}	V_{DS} =0V, V_{GS} =±20V			±10	uA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} =-50V, V_{GS} =0V			-1	μA
		V_{DS} =-25V, V_{GS} =0V			-0.1	μA
Gate-Threshold Voltage(Note 4)	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=-250μA	-0.9	-1.62	-2	V
Drain-Source On-Resistance(Note 4)	$R_{DS(on)}$	V_{GS}=-5V, I_D=-0.1A		5.5	10	Ω
		V_{GS}=-10V, I_D=-0.1A		4.1	8	
Forward Transconductance(Note 4)	g_{FS}	V_{DS}=-25V, I_D=-0.1A	0.05			S
Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_S=-0.18A			-2.2	V
Dynamic Characteristics(Note 5)						
Input Capacitance	C_{iss}	V_{DS}=-5V,V_{GS}=0V,f =1MHz		30		pF
Output Capacitance	C_{oss}			10		
Reverse Transfer Capacitance	C_{rss}			5		
Switching Characteristics(Note 5)						
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=-15V,I_D=-2.5A,R_L=50Ω		2.5		ns
Turn-On Rise Time	t_r			1		
Turn-Off Delay Time	$t_{d(off)}$			16		
Turn-Off Fall Time	t_f			8		

Note: 4. Pulse Test : Pulse Width≤300μs, Duty Cycle ≤ 2%.
5. Guaranteed by Design, Not Subject to Production Testing.

Curve Characteristics(N-Channel)

Fig. 1 - Output Charact eristics

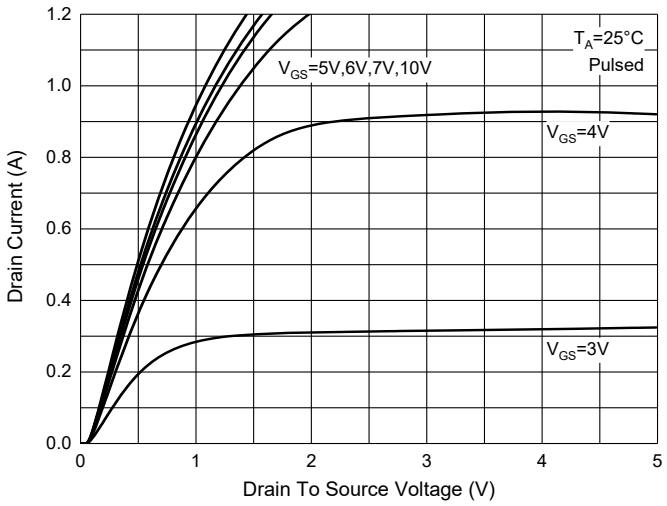


Fig. 2 - Transfer Characteristics

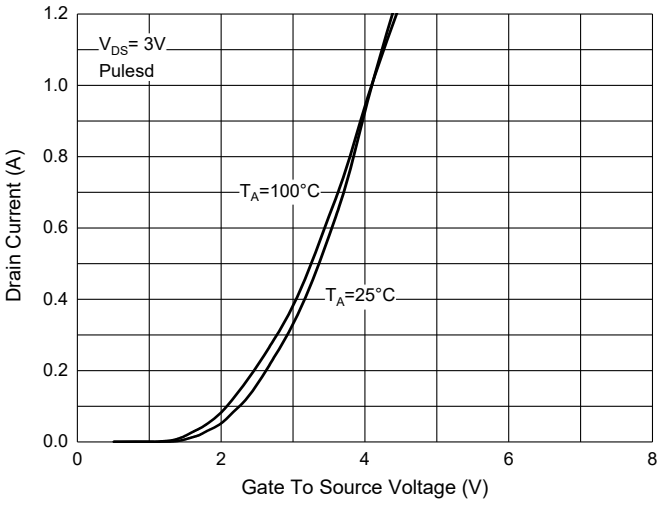


Fig. 3 - $R_{DS(ON)}$—I_D

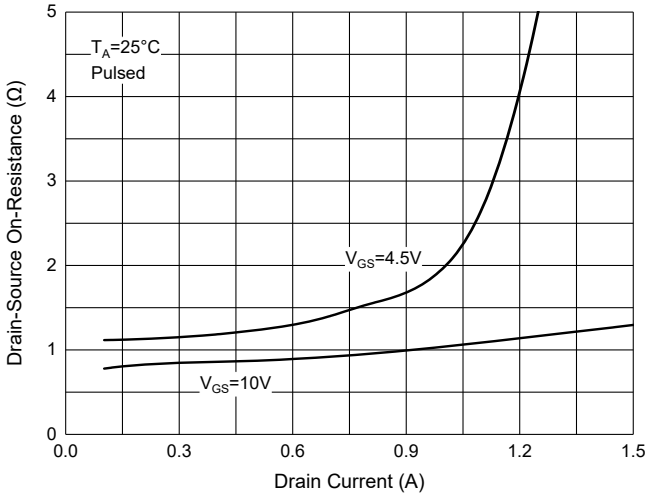


Fig. 4 - $R_{DS(ON)}$—V_{GS}

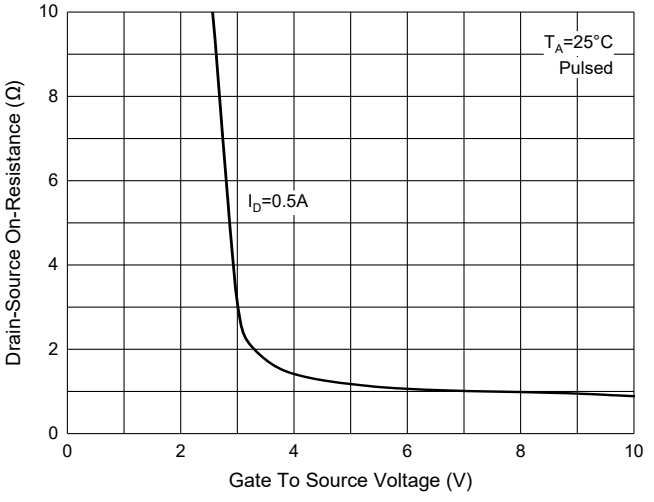


Fig. 5 - I_S—V_{SD}

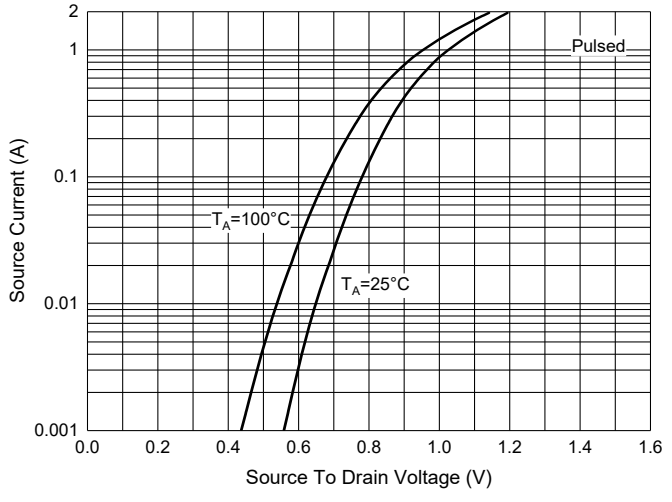
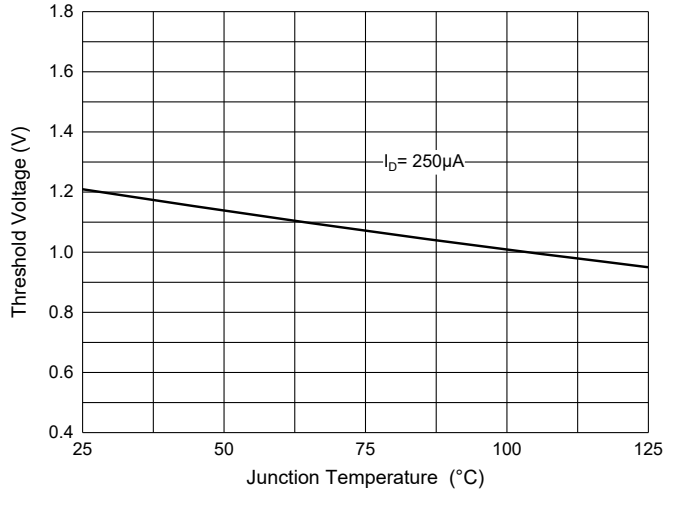


Fig. 6 - Threshold Voltage



Curve Characteristics(P-Channel)

Fig. 1 - Output Charact eristics

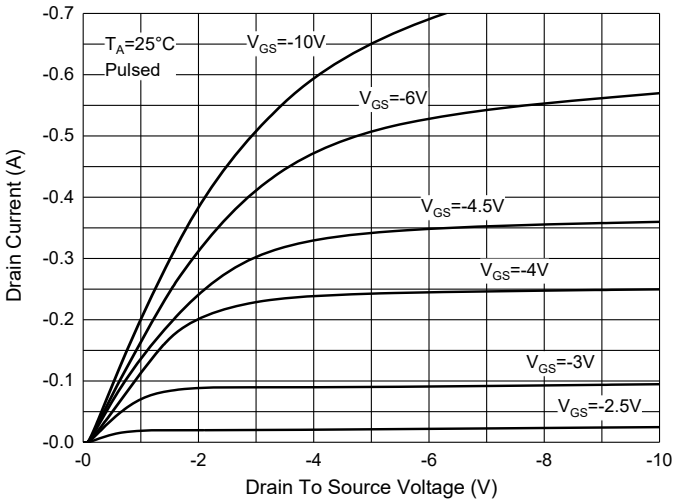


Fig. 2 - Transfer Characteristics

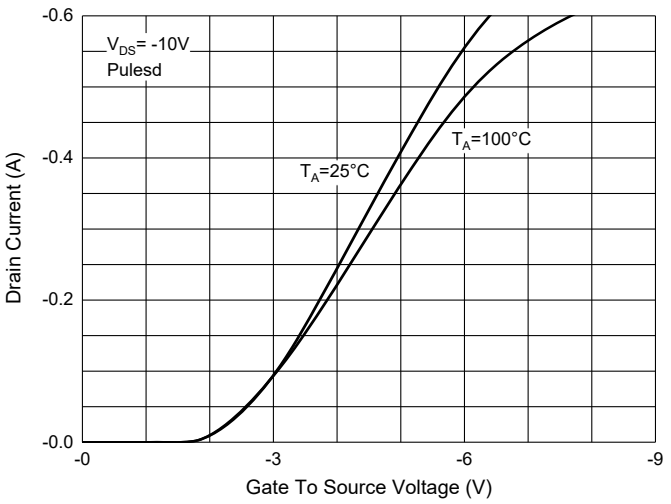


Fig. 3 - $R_{DS(ON)}$—I_D

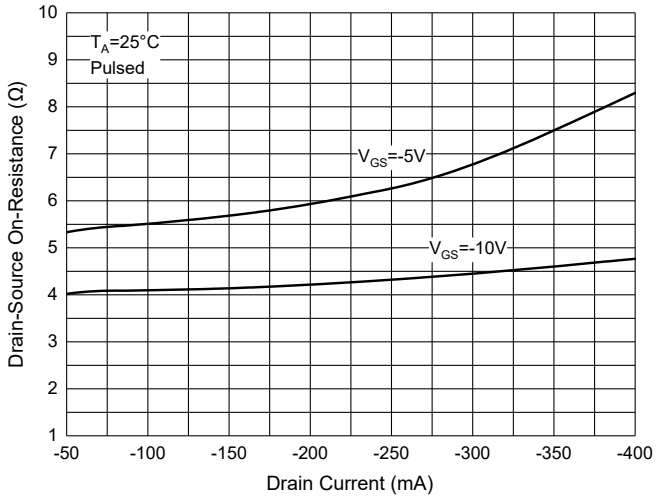


Fig. 4 - $R_{DS(ON)}$—V_{GS}

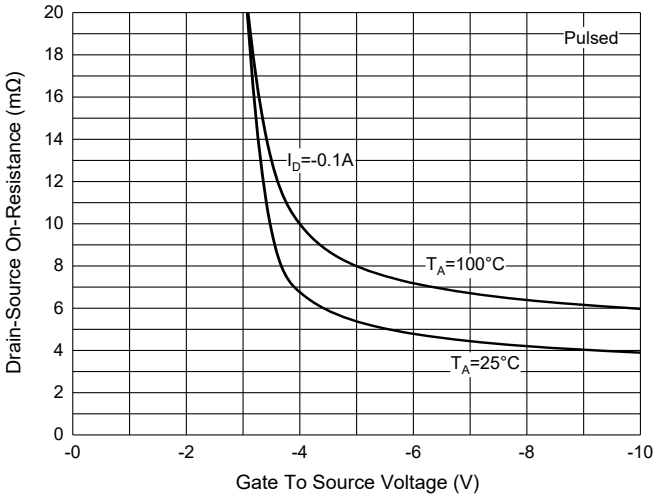


Fig. 5 - I_S—V_{SD}

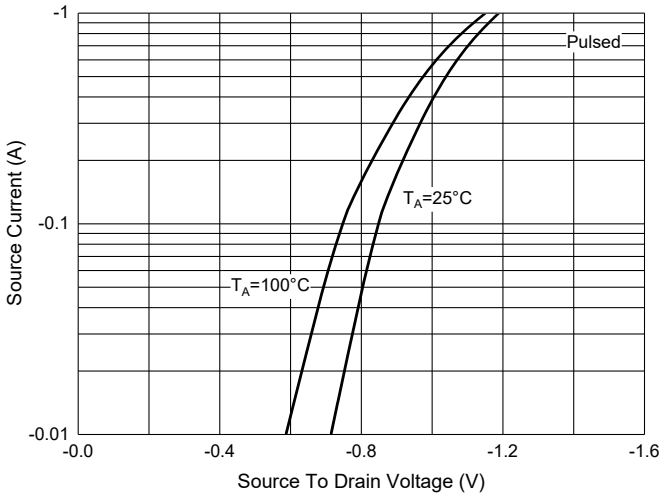
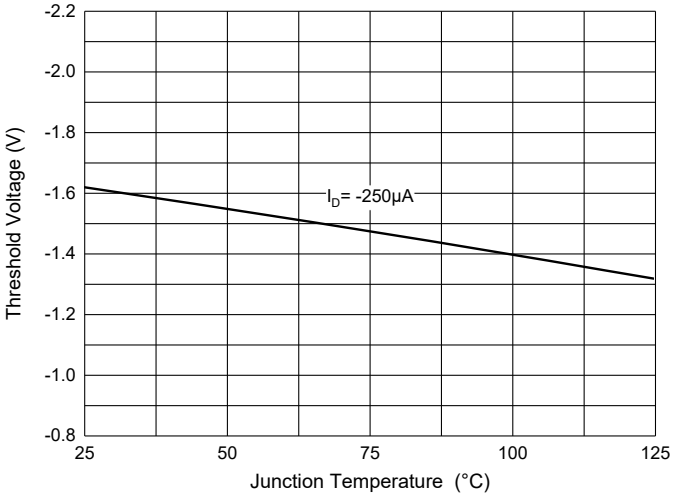


Fig. 6 - Threshold Voltage



Ordering Information

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