

Features

- Low $R_{DS(on)}$ and FOM
- Extremely Low Switching Loss
- Excellent Stability and Uniformity
- Fast Switching and Soft Recovery
- Epoxy Meets UL 94 V-0 Flammability Rating
- Moisture Sensitivity Level 1
- Halogen Free Available Upon Request By Adding Suffix "-HF"
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

Maximum Ratings

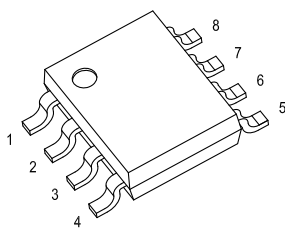
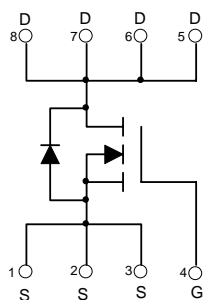
- Operating Junction Temperature Range : -55°C to $+150^{\circ}\text{C}$
- Storage Temperature Range: -55°C to $+150^{\circ}\text{C}$
- Thermal Resistance: 31°C/W Junction to Ambient^(Note1)

Parameter	Symbol	Rating	Unit	
Drain-Source Voltage	V_{DS}	100	V	
Gate-Source Voltage	V_{GS}	± 20	V	
Continuous Drain Current ^(Note2)	I_D	15	A	
Pulsed Drain Current ^(Note3)	I_{DM}	64	A	
Total Power Dissipation ^(Note4)	P_D	$T_C=25^{\circ}\text{C}$	4	W
		$T_C=100^{\circ}\text{C}$	1.6	
Single Pulsed Avalanche Energy ^(Note5)	E_{AS}	130	mJ	

Note:

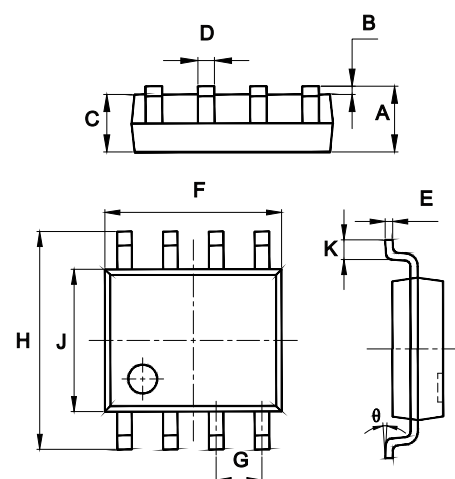
1. The value of $R_{\theta JA}$ is measured with the device mounted on 1 in 2 FR-4 board with 2oz. Copper, in a still air environment with $T_A=25^{\circ}\text{C}$.
2. Calculated continuous current based on maximum allowable junction temperature.
3. Repetitive rating; pulse width limited by max. junction temperature.
4. P_D is based on max. junction temperature, using junction-case thermal resistance.
5. $V_{DD}=50\text{V}$, $R_G=50\Omega$, $L=0.3\text{mH}$, starting $T_J=25^{\circ}\text{C}$.

Internal Structure:



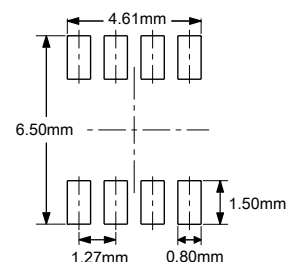
N-Channel Enhancement Mode Field Effect Transistor

SOP-8



DIM	DIMENSIONS				NOTE
	INCHES		MM		
	MIN	MAX	MIN	MAX	
A	0.053	0.069	1.35	1.75	
B	0.004	0.010	0.10	0.25	
C	0.053	0.061	1.35	1.55	
D	0.013	0.020	0.33	0.51	
E	0.007	0.010	0.17	0.25	
F	0.185	0.200	4.70	5.10	
G	0.050 BSC		1.270 BSC		
H	0.228	0.244	5.80	6.20	
J	0.150	0.157	3.80	4.00	
K	0.016	0.050	0.40	1.27	
θ	0°	8°	0°	8°	

Suggested Solder Pad Layout



Electrical Characteristics @ 25°C (Unless Otherwise Specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	100			V
Gate-Source Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 20V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=100V, V_{GS}=0V$			1	μA
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1	1.8	2.5	V
Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=12A$		7.7	9.5	m Ω
		$V_{GS}=4.5V, I_D=9A$		9.2	12.5	
Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=15A$			1.3	V
Maximum Body-Diode Continuous Current	I_S				15	A
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS}=50V, V_{GS}=0V, f=1MHz$		3530		pF
Output Capacitance	C_{oss}			560		
Reverse Transfer Capacitance	C_{rss}			9		
Switching Characteristics						
Total Gate Charge	Q_g	$V_{DS}=50V, V_{GS}=10V, I_D=10A$		60.7		nC
Gate-Source Charge	Q_{gs}			7.2		
Gate-Drain Charge	Q_{gd}			14.6		
Reverse Recovery Charge	Q_{rr}	$I_F=10A, di/dt=100A/\mu s$		160		ns
Reverse Recovery Time	t_{rr}			67		
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=10V, V_{DD}=50V, I_D=10A$		22.5		ns
Turn-On Rise Time	t_r			8.6		
Turn-Off Delay Time	$t_{d(off)}$			66.6		
Turn-Off Fall Time	t_f			42.1		

Curve Characteristics

Fig. 1 - Output Characteristics

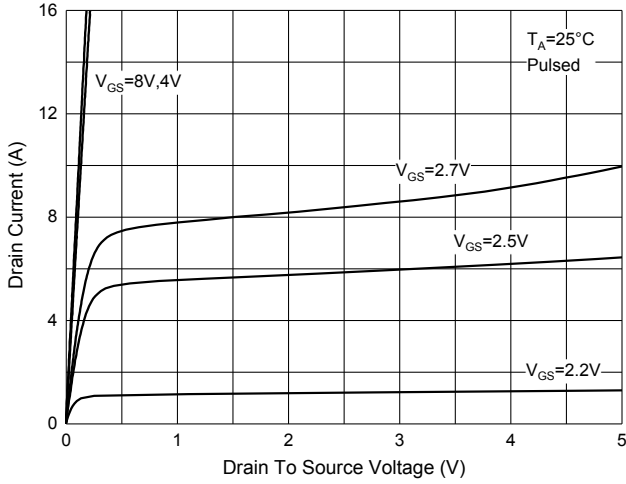


Fig. 2 - Transfer Characteristics

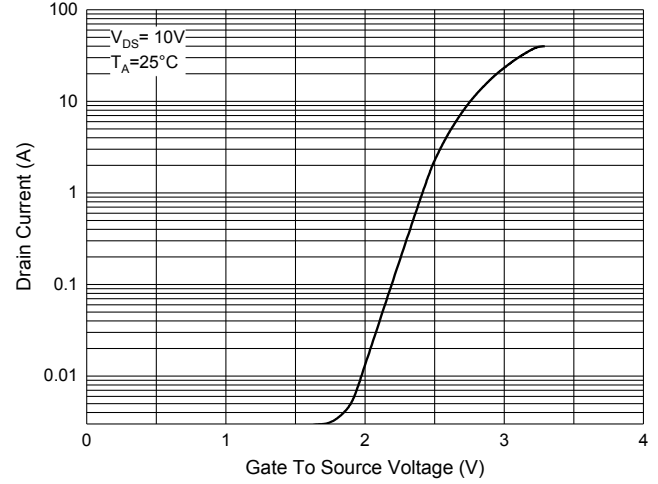


Fig. 3 - $R_{DS(ON)} - I_D$

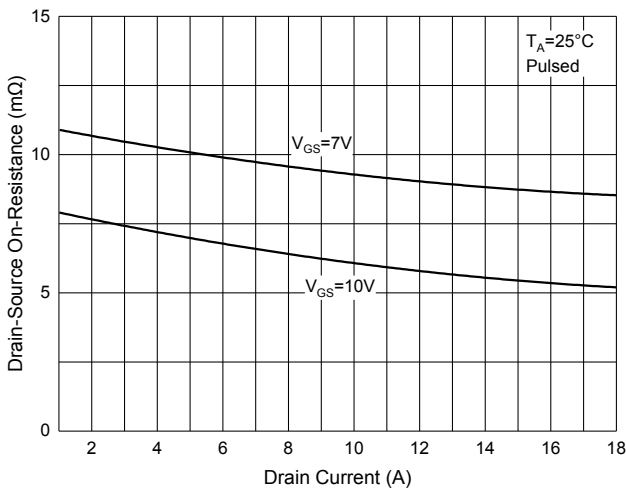


Fig. 4 - Gate charge

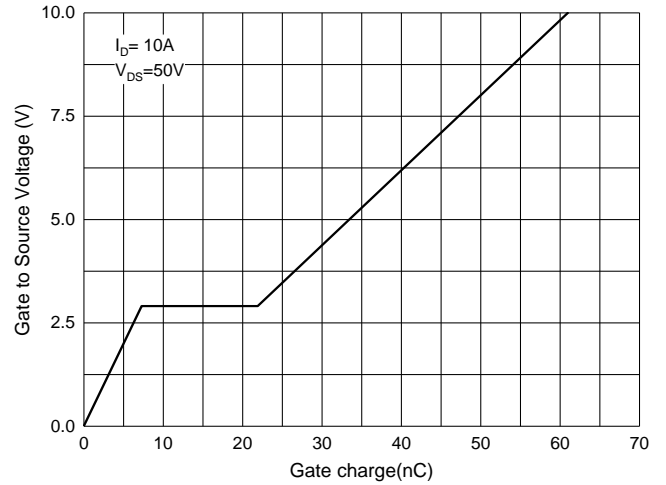


Fig. 5 - $I_S - V_{SD}$

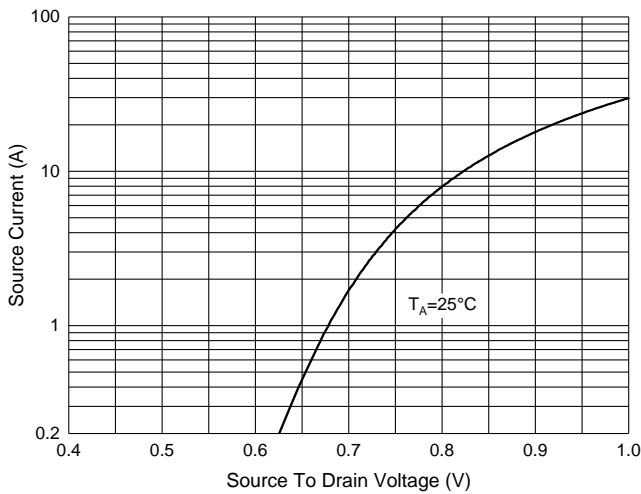
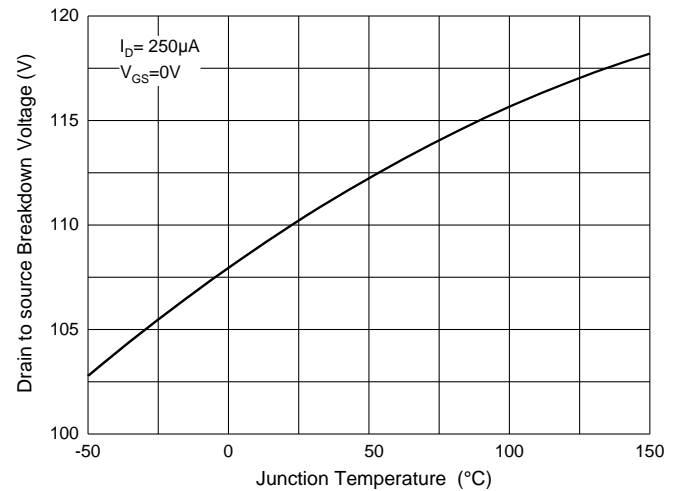


Fig. 6 - Drain to source Breakdown Voltage



Ordering Information

Device	Packing
Part Number-TP	Tape&Reel: 4Kpcs/Reel

Note : Adding "-HF" Suffix For Halogen Free, eg. Part Number-TP-HF

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