Features

- Trench Power LV MOSFET Technology
- High Speed Switching
- High Density Cell Design for Low $R_{DS(on)}$
- 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)

N-CHANNEL MOSFET

Maximum Ratings

- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 50°C/W Junction to Ambient(Note 1)

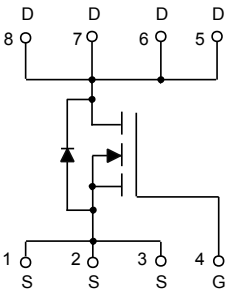
Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Volltage		V_{GS}	±20	V
Continuous Drain Current	T_A=25°C	I_D	12	A
	T_A=70°C		9.6	A
Pulsed Drain Current (Note 2)		I_{DM}	50	A
Total Power Dissipation		P_D	2.5	W

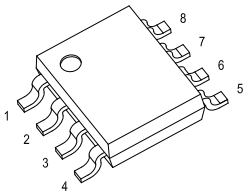
Note:

1.The Value of $R_{\theta JA}$ is Measured with the Device Mounted on 1in^2 FR-4 Board with 2oz. Copper, in a Still Air Environment with T_A=25°C.

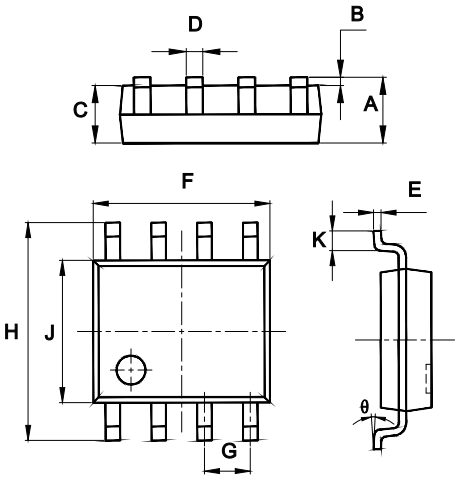
2.Pulse Test: Pulse Width≤300μs,Duty Cycle ≤2%.

Internal Structure



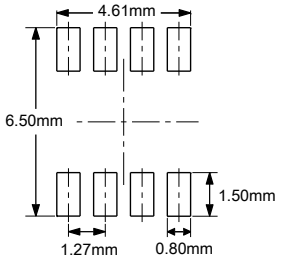


SOP-8



DIMENSIONS					
DIM	INCHES		MM		NOTE
	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		1.270		TYP.
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=250μA	30			V
Gate-Source Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS} =±20V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=60V, V_{GS}=0V			1	μA
Gate-Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	1	1.5	2.5	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=10V, I_D=8A		9	12	mΩ
		V_{GS}=4.5V, I_D=6A		11	15	
Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_S=12A		0.85	1.2	V
Continuous Body Diode Current	I_S				12	A
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=15V,V_{GS}=0V,f=1MHz		950		pF
Output Capacitance	C_{oss}			204		
Reverse Transfer Capacitance	C_{rss}			121		
Total Gate Charge	Q_g	V_{DS}=15V,V_{GS}=10V,I_D=12A		28		nC
Gate-Source Charge	Q_{gs}			7		
Gate-Drain Charge	Q_{gd}			5		
Turn-On Delay Time	$t_{d(on)}$	V_{GS}=10V,V_{DD}=20V, I_D=2A,R_L=1Ω R_{GEN}=3Ω		8.3		ns
Turn-On Rise Time	t_r			14.9		
Turn-Off Delay Time	$t_{d(off)}$			16		
Turn-Off Fall Time	t_f			6.5		

Curve Characteristics

Fig. 1 - Typical Output Characteristics

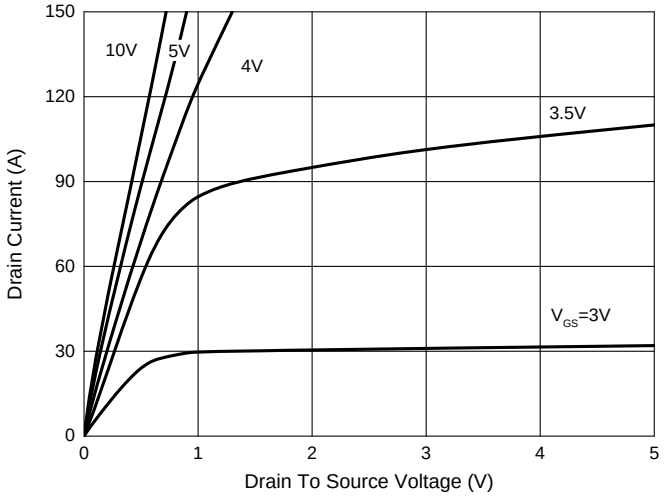


Fig. 2 - Transfer Characteristics

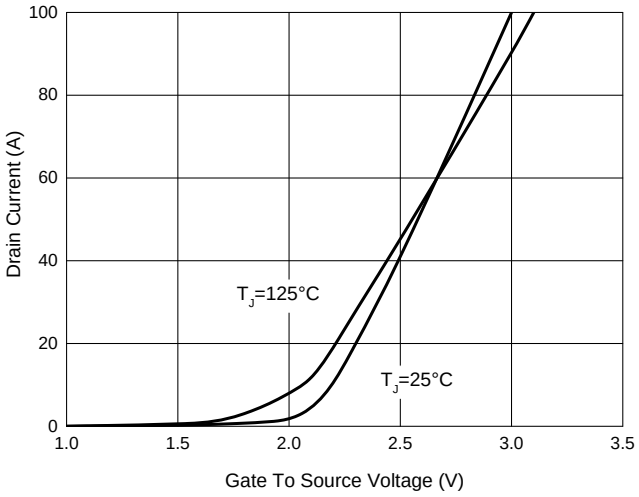


Fig. 3 - Capacitance Characteristics

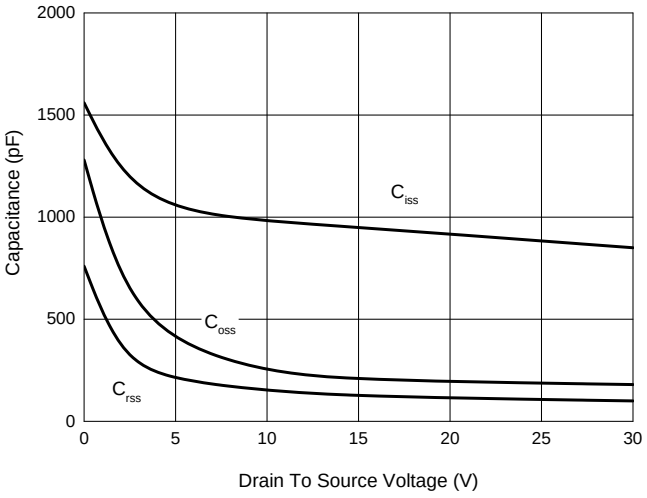


Fig. 4 - Total Gate Charge Characteristics

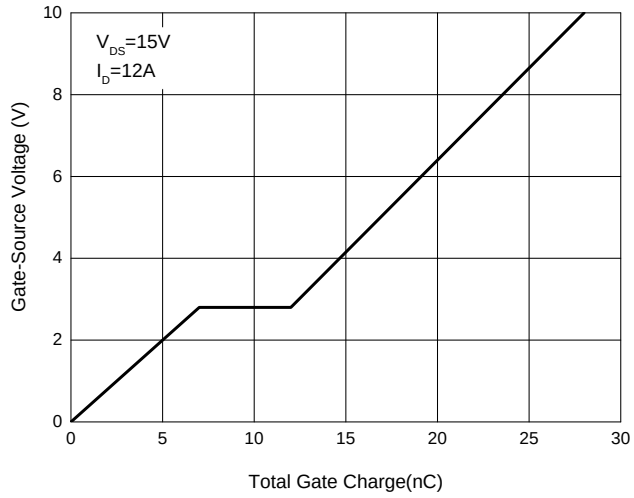


Fig. 5 - $R_{DS(ON)}$—I_D

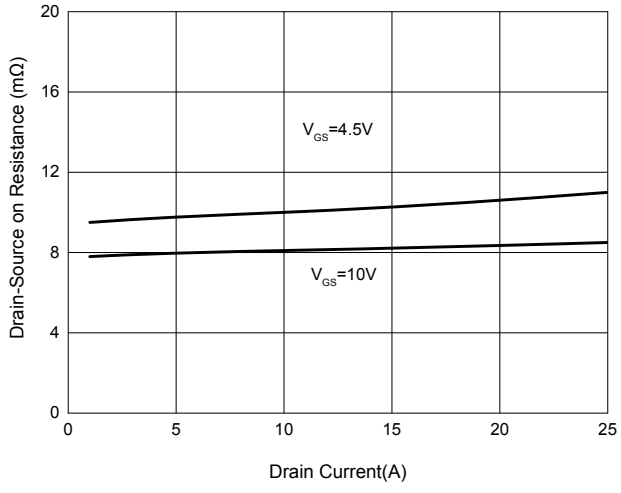
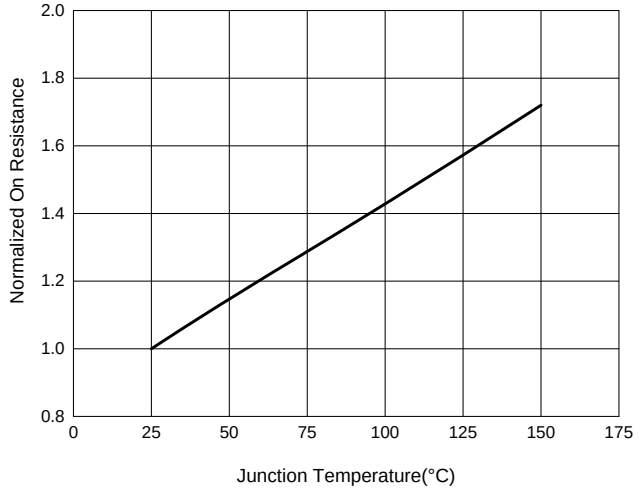


Fig. 6 - Normalized On Resistance Characteristics



Ordering Information

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

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