Features

- Split Gate Trench MOSFET Technology
- Excellent Package for Heat Dissipation
- 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

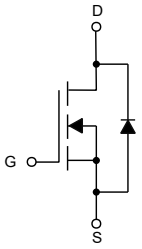
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 0.56°C/W Junction to Case

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	100	V
Gate-Source Volltage		V_{GS}	±20	V
Continuous Drain Current	T_C=25°C	I_D	160	A
	T_C=100°C		101	A
Pulsed Drain Current (1)		I_{DM}	480	A
Avalanche Energy (2)		E_{AS}	360	mJ
Total Power Dissipation		P_D	223	W

Note:

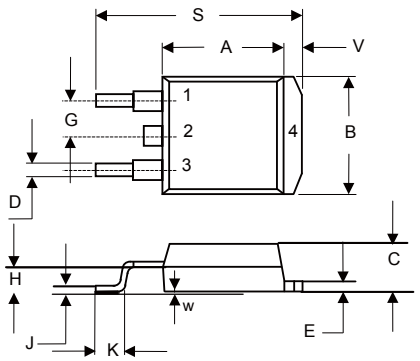
1. Pulse Test: Pulse Width≤300μs,Duty Cycle ≤2%.
2. T_J=25°C, L=1.0mH, I_{AS}=28.0A, V_{DD}=50V.

Internal Structure



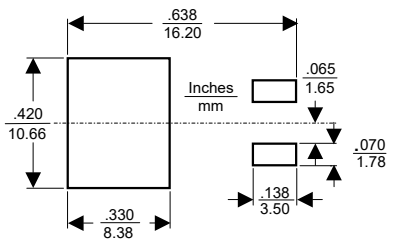
1. Gate
2,4. Drain
3. Source

D2-PAK



DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.331	0.370	8.40	9.40	
B	0.378	0.417	9.60	10.60	
C	0.165	0.189	4.20	4.80	
D	0.027	0.037	0.68	0.94	
E	0.045	0.055	1.14	1.40	
G	0.010		2.54		TYP.
H	0.096	0.134	2.43	3.40	
J	0.011	0.025	0.28	0.64	
K	0.071	0.131	1.80	3.32	
S	0.575	0.625	14.60	15.87	
V	0.042	0.058	1.07	1.47	
W	0.000	0.010	0.00	0.25	

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	100			V
Gate-Source Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS} =±20V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=80V, V_{GS}=0V			1	μA
Gate-Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	1		3	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=10V, I_D=30A		3.4	4.0	mΩ
		V_{GS}=4.5V, I_D=15A		4.5	5.8	mΩ
Diode Characteristics						
Continuous Body Diode Current	I_S				160	A
Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_S=30A			1.3	V
Reverse Recovery Time	t_{rr}	I_S=30A,di/dt=100A/μs		88		ns
Reverse Recovery Charge	Q_{rr}			161		nC
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=50V,V_{GS}=0V,f=1MHz		4803		pF
Output Capacitance	C_{oss}			818		
Reverse Transfer Capacitance	C_{rss}			43		
Total Gate Charge	Q_g	V_{DS}=50V,V_{GS}=10V,I_D=30A		105		nC
Gate-Source Charge	Q_{gs}			17		
Gate-Drain Charge	Q_{gd}			28		
Turn-On Delay Time	$t_{d(on)}$	V_{DS}=50V, V_{GEN}=10V, R_G=4.5Ω, R_L=1.66Ω, I_{DS}=30A		19		ns
Turn-On Rise Time	t_r			59		
Turn-Off Delay Time	$t_{d(off)}$			92		
Turn-Off Fall Time	t_f			121		

Curve Characteristics

Fig. 1 - Typical Output Characteristics

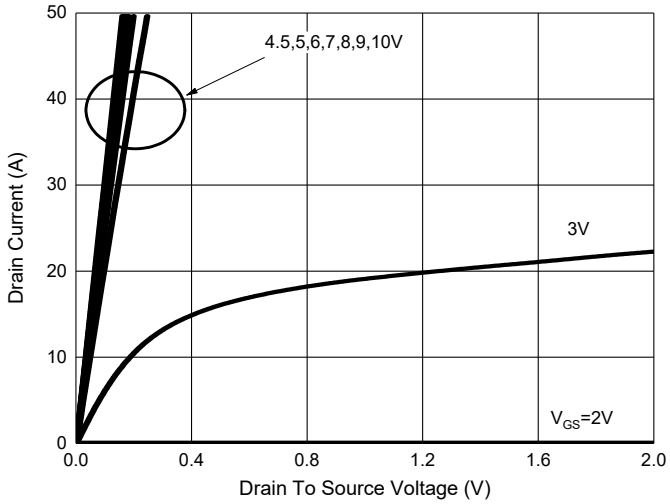


Fig. 2 - I_S—V_{SD}

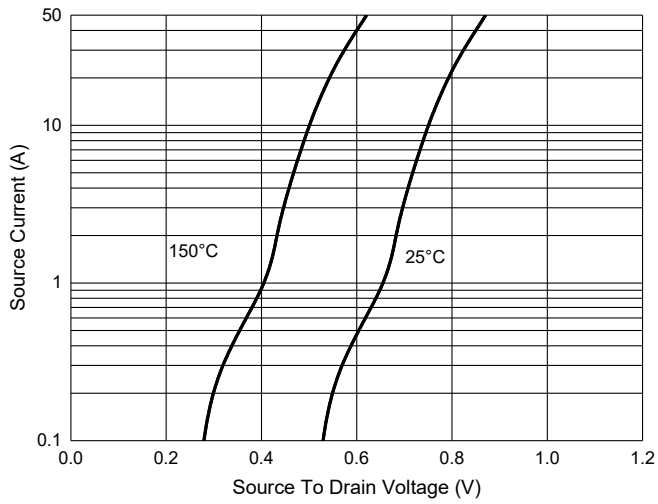


Fig. 3 - $R_{DS(ON)}$—I_D

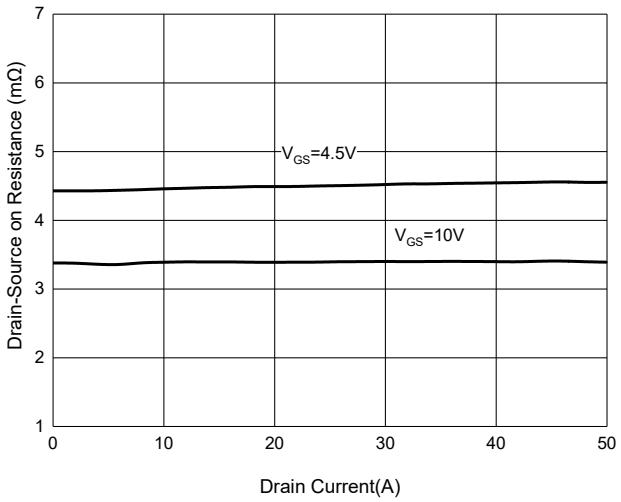


Fig. 4 - Normalized On Resistance Characteristics

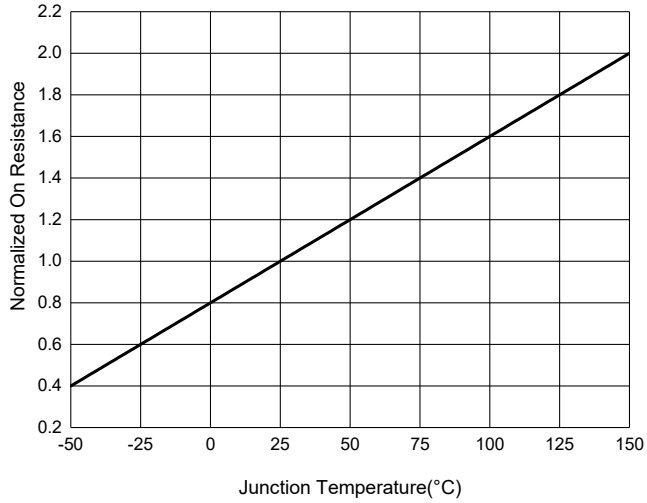


Fig. 5 - Capacitance Characteristics

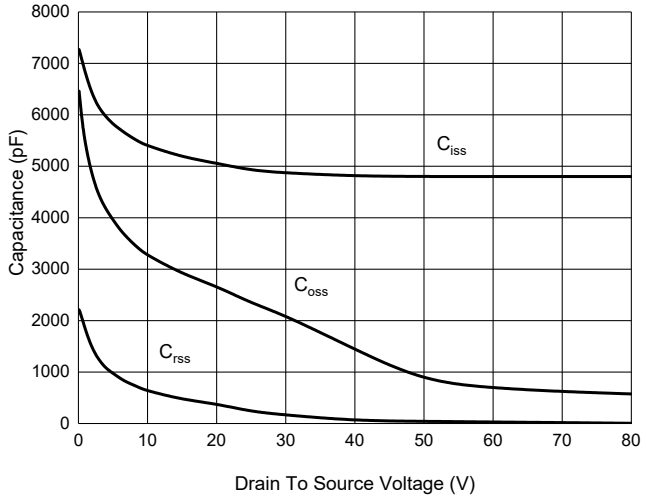
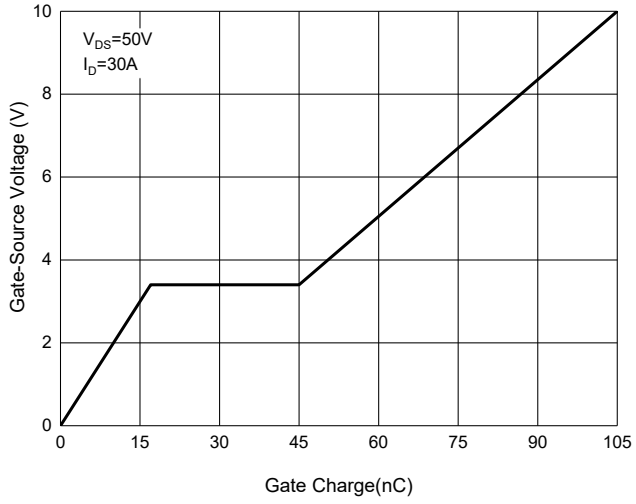
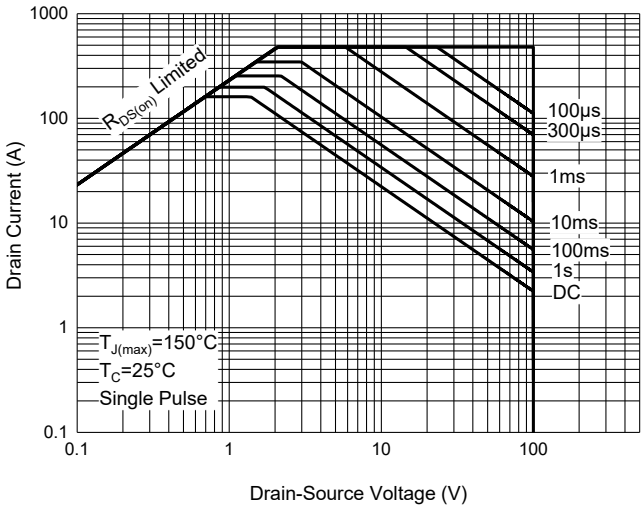


Fig. 6 - Gate Charge



Curve Characteristics

Fig. 7 - Safe Operation Area



Ordering Information

Device	Packing
Part Number-TP	Tape&Reel: 800pcs/Reel

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