

Features

- Split Gate Trench MOSFET Technology
- Excellent Package for Heat Dissipation
- High Density Cell Design for Low $R_{DS(on)}$
- Halogen Free Available Upon Request By Adding Suffix "-HF"
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

Maximum Ratings

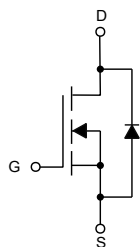
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 0.48°C/W Junction to Case

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current ⁽¹⁾	I_D	200	A
Pulsed Drain Current ⁽²⁾	I_{DM}	680	A
Total Power Dissipation ⁽³⁾	P_D	260	W
Single Pulsed Avalanche Energy ⁽⁴⁾	E_{AS}	640	mJ

Note:

1. The maximum current rating is package limited.
2. Repetitive rating; pulse width limited by max. junction temperature.
3. P_D is based on max. junction temperature, using junction-case thermal resistance.
4. $V_{DD}=50V$, $R_G=25\Omega$, $L=5mH$, starting $T_J=25^\circ C$.

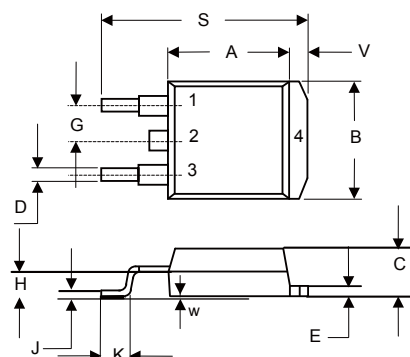
Internal Structure



1. Gate
- 2,4. Drain
3. Source

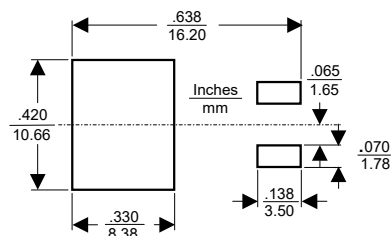
N-CHANNEL MOSFET

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	60			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	2.2	2.8	3.8	V
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =10V, I _D =20A		2.5	3.2	mΩ
		V _{GS} =6V, I _D =20A		3.4	4.3	mΩ
Diode Characteristics						
Continuous Body Diode Current	I _S				200	A
Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =20A			1.2	V
Reverse Recovery Time	t _{rr}	I _S =25A,di/dt=100A/μs		58		ns
Reverse Recovery Charge	Q _{rr}			63		nC
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =25V,V _{GS} =0V,f=100KHz		4165		pF
Output Capacitance	C _{oss}			900		
Reverse Transfer Capacitance	C _{rss}			59		
Total Gate Charge	Q _g	V _{DS} =50V,V _{GS} =10V,I _D =50A		65		nC
Gate-Source Charge	Q _{gs}			11.9		
Gate-Drain Charge	Q _{gd}			9.8		
Turn-On Delay Time	t _{d(on)}	V _{DD} =30V, V _{GS} =10V, R _{GEN} =2Ω, I _D =25A		22.5		ns
Turn-On Rise Time	t _r			6.7		
Turn-Off Delay Time	t _{d(off)}			80.3		
Turn-Off Fall Time	t _f			26.9		

Curve Characteristics

Fig. 1 - Typical Output Characteristics

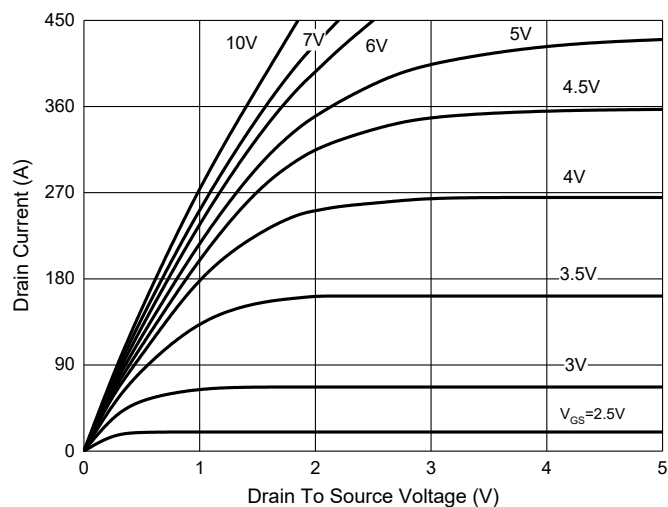


Fig. 2 - I_S-V_{SD}

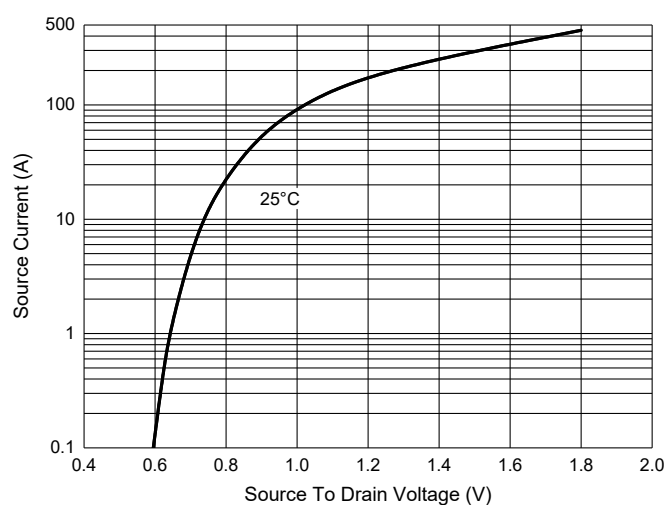


Fig. 3 - $R_{DS(ON)}-I_D$

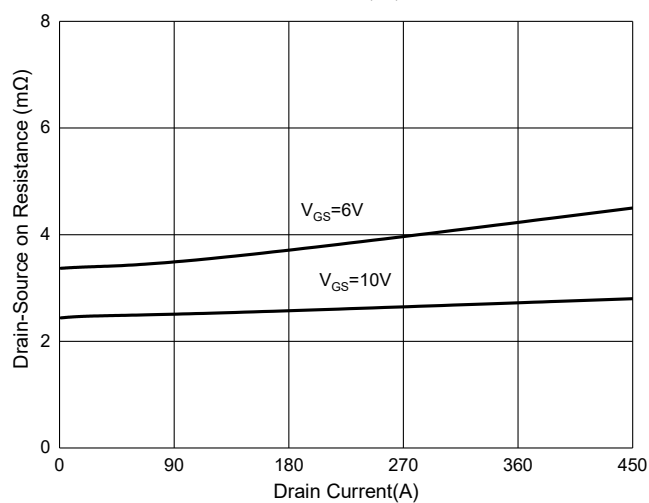


Fig. 4 - Normalized On Resistance Characteristics

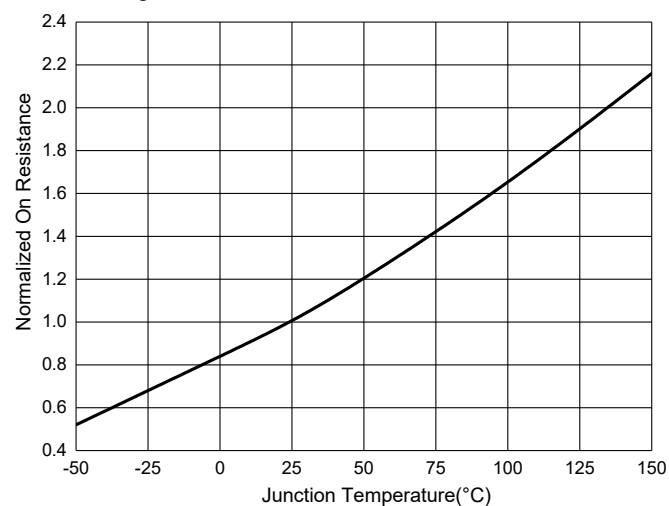


Fig. 5 - Capacitance Characteristics

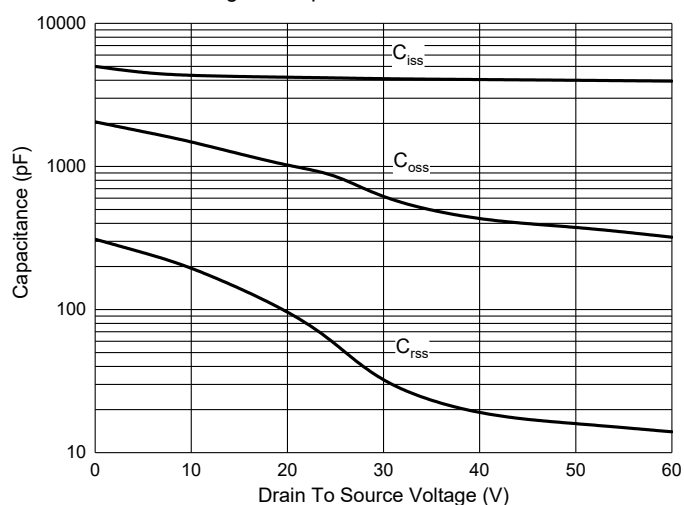
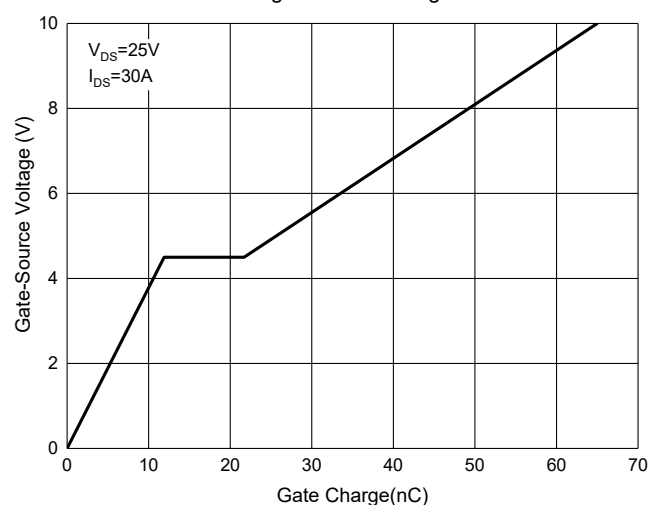
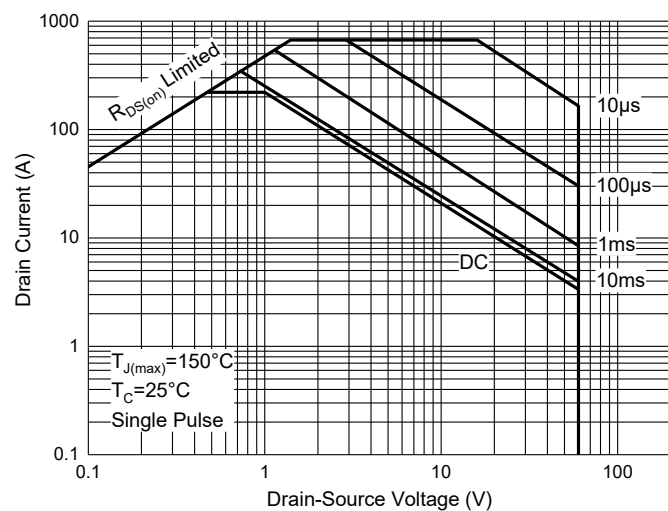


Fig. 6 - Gate Charge



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

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