

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)

Maximum Ratings

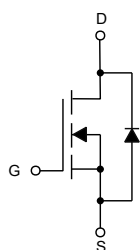
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 28°C/W Junction to Ambient⁽¹⁾
- Thermal Resistance: 0.48°C/W Junction to Case

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V _{DS}	60	V
Gate-Source Voltage		V _{GS}	±20	V
Continuous Drain Current ⁽²⁾	T _C =25°C	I _D	200	A
	T _C =100°C		125	A
Pulsed Drain Current ⁽³⁾		I _{DM}	600	A
Avalanche Energy ⁽⁴⁾		E _{AS}	500	mJ
Total Power Dissipation ⁽⁵⁾		P _D	260	W

Note:

1. The value of $R_{\theta JA}$ is measured with the device mounted on 1 in² FR-4 board with 2oz. copper, in a still air environment with $T_A=25^\circ\text{C}$.
2. The maximum current rating is package limited.
3. Repetitive rating; pulse width limited by max. junction temperature.
4. $V_{DD}=50\text{V}$, $R_G=25\Omega$, $L=0.5\text{mH}$, starting $T_J=25^\circ\text{C}$.
5. P_D is based on max. junction temperature, using junction-case thermal resistance.

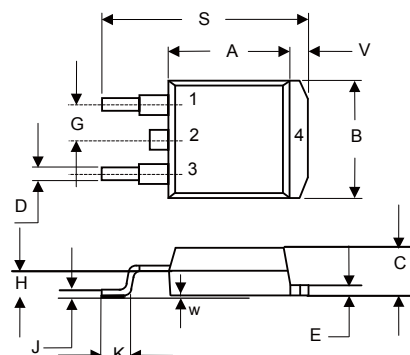
Internal Structure



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

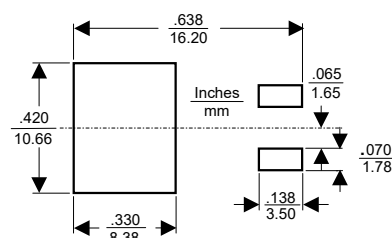
N-CHANNEL MOSFET

D2-PAK



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	1.2	1.8	2.2	V
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =10V, I _D =20A		2.35	2.6	mΩ
		V _{GS} =4.5V, I _D =15A		2.9	3.6	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		68		ns
Reverse Recovery Charge	Q _{rr}			73		nC
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =25V,V _{GS} =0V,f=100KHz		5950		pF
Output Capacitance	C _{oss}			1250		
Reverse Transfer Capacitance	C _{rss}			85		
Total Gate Charge	Q _g	V _{DS} =50V,V _{GS} =10V,I _D =50A		93		nC
Gate-Source Charge	Q _{gs}			17		
Gate-Drain Charge	Q _{gd}			14		
Turn-On Delay Time	t _{d(on)}	V _{GS} =10V,V _{DD} =30V, I _D =25A, R _{GEN} =2Ω		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

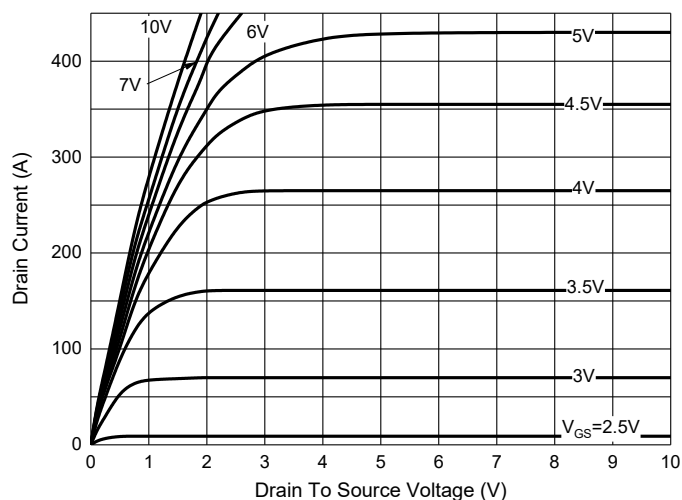


Fig. 2 - I_S-V_{SD}

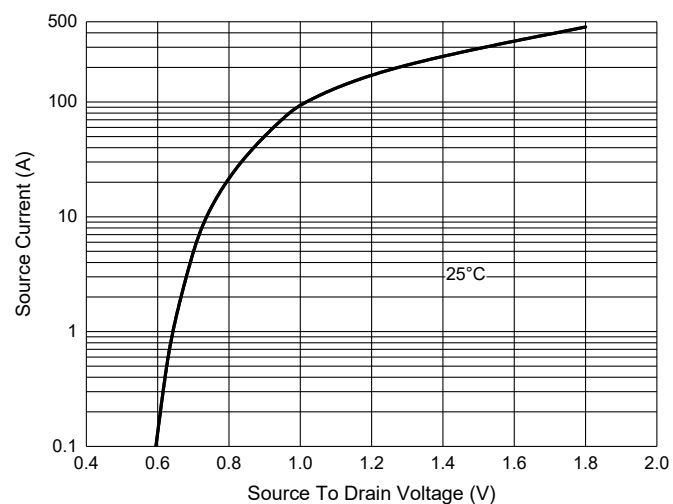


Fig. 3 - $R_{DS(ON)}-I_D$

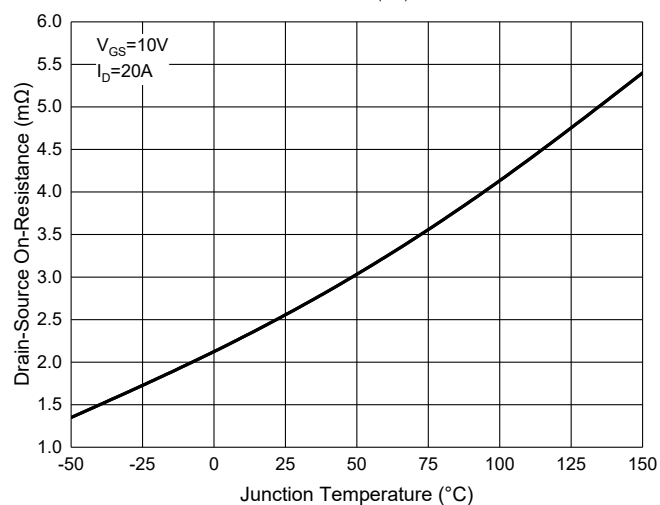


Fig. 4 - Capacitance Characteristics

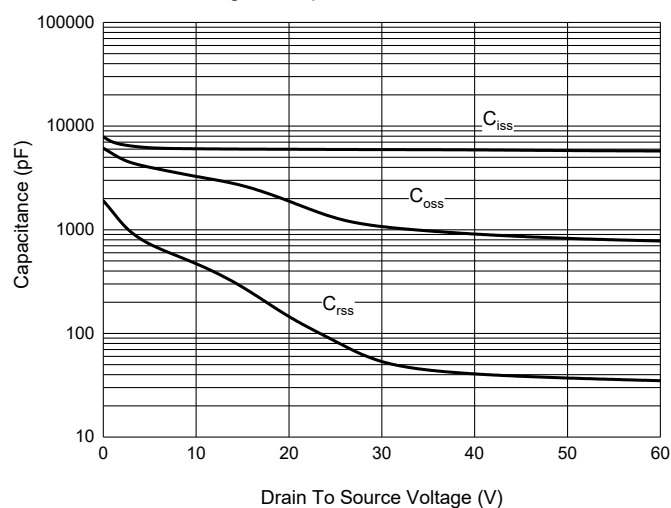


Fig. 5 - Gate Charge

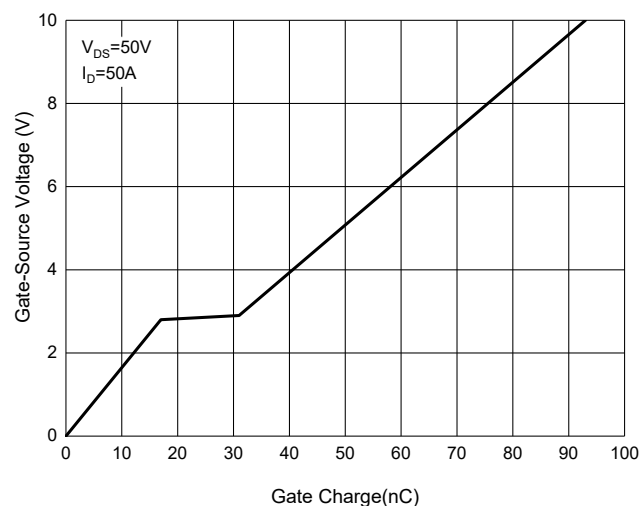
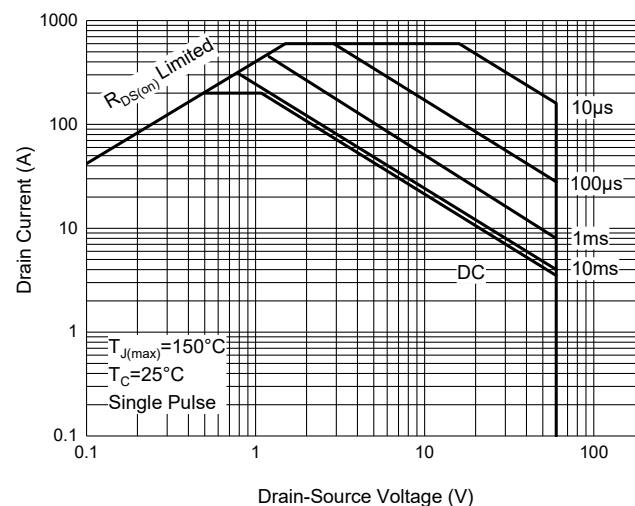


Fig. 6 - Safe Operation Area



Ordering Information

Device	Packing
Part Number-TP	Tape&Reel: 800pcs/Reel
Part Number-BP	Tube: 5Kpcs/Ctn

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

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