

Features

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

Maximum Ratings

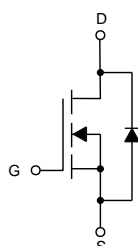
- Operating Junction Temperature Range: -55°C to $+150^{\circ}\text{C}$
- Storage Temperature Range: -55°C to $+150^{\circ}\text{C}$
- Thermal Resistance: 62°C/W Junction to Ambient⁽¹⁾
- Thermal Resistance: 0.65°C/W Junction to Case

Parameter	Symbol	Value
Drain-Source Voltage	V_{DS}	100V
Gate-Source Voltage	V_{GS}	$\pm 20\text{V}$
Continuous Drain Current ⁽²⁾ , $T_C=25^{\circ}\text{C}$	I_D	130A
Pulsed Drain Current ⁽³⁾ , $T_C=25^{\circ}\text{C}$	$I_{D,pluse}$	390A
Power Dissipation ⁽⁴⁾ , $T_C=25^{\circ}\text{C}$	P_D	192W
Single Pulsed Avalanche Energy ⁽⁵⁾	E_{AS}	500mJ

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. 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. $V_{DD}=50\text{V}$, $R_G=25\Omega$, $L=0.5\text{mH}$, Starting $T_J=25^{\circ}\text{C}$.

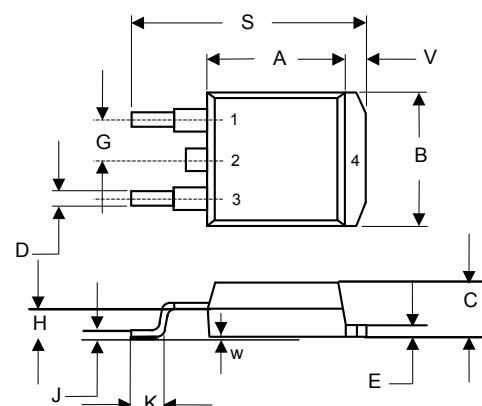
Internal Structure



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

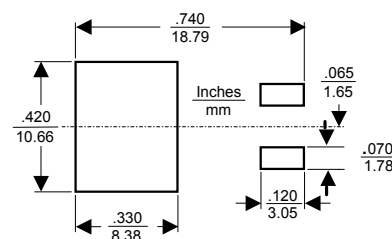
N-Channel MOSFET

D2-PAK



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.320	0.359	8.13	9.14	
B	0.380	0.411	9.65	10.45	
C	0.160	0.190	4.06	4.83	
D	0.020	0.035	0.51	0.89	
E	0.045	0.055	1.14	1.40	
G	0.083	0.105	2.10	2.67	
H	0.096	0.134	2.43	3.40	
J	0.014	0.021	0.35	0.53	
K	0.090	0.131	2.29	3.32	
S	0.575	0.625	14.22	16.22	
V	0.045	0.055	1.14	1.40	
W	0.000	0.006	0.00	0.15	

Suggested Solder Pad Layout



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-Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	2		4	V
Gate-Body Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =100V, V _{GS} =0V			1	μA
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =10V, I _D =60A		4.0	4.6	mΩ
Dynamic Characteristics						
Drain-Source On-Voltage	C _{iss}	V _{GS} =0V, V _{DS} =50V, f=1MHz		6124.6		pF
Output Capacitance	C _{oss}			792.3		pF
Reverse Transfer Capacitance	C _{rss}			15.1		pF
Turn-On Delay Time	t _{d(on)}	V _{GS} =10V, V _{DS} =50V, R _G =2.2Ω, I _D =22 A		28.2		ns
Rise Time	t _r			7.5		ns
Turn-Off Delay Time	t _{d(off)}			81.9		ns
Fall Time	t _f			20.1		ns
Gate Charge Characteristics						
Total Gate Charge	Q _g	I _D =22A, V _{DS} =50V, V _{GS} =10V		101.6		nC
Gate-Source Charge	Q _{gs}			20.6		nC
Gate-Drain Charge	Q _{gd}			28.7		nC
Gate Plateau Voltage	V _{plateau}			4.2		V
Body Diode Characteristics						
Diode Forward Current	I _S	V _{GS} <V _{th}			130	A
Pulsed Source Current	I _{SP}				390	A
Diode Forward Voltage	V _{SD}	I _S =20A, V _{GS} =0V			1.3	V
Reverse Recovery Time	t _{rr}	I _S =10A, di/dt=100A/μs		82.1		ns
Reverse Recovery Charge	Q _{rr}			248.4		nC
Peak Reverse Recovery Current	I _{rrm}			4.9		A

Curve Characteristics

Fig. 1 - Typical Output Characteristics

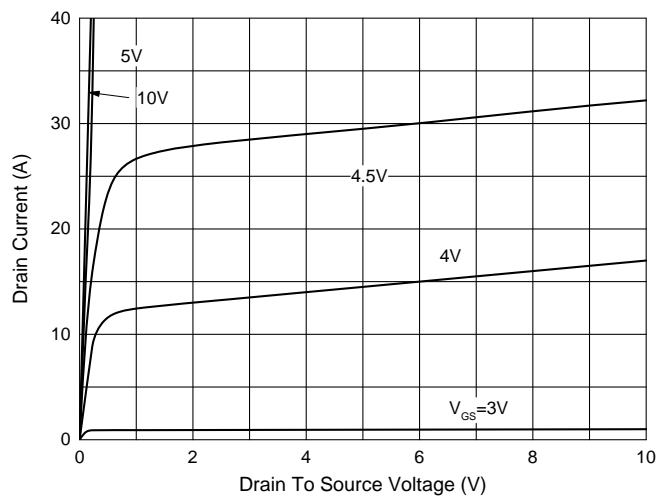


Fig. 2 - Transfer Characteristics

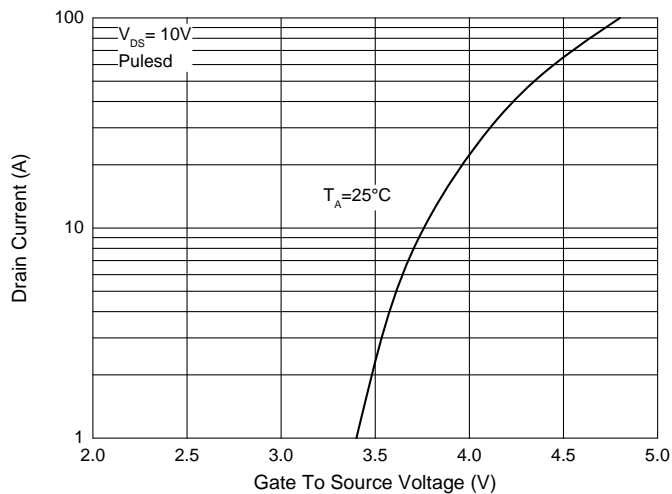


Fig. 3 - Capacitance Characteristics

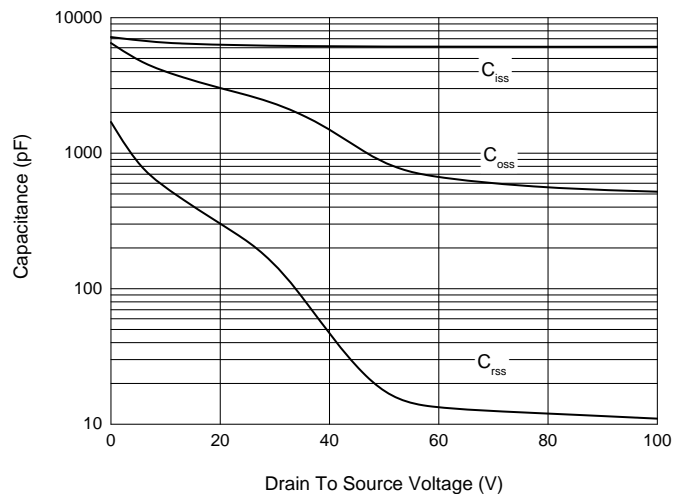


Fig. 4 - Total Gate Charge Characteristics

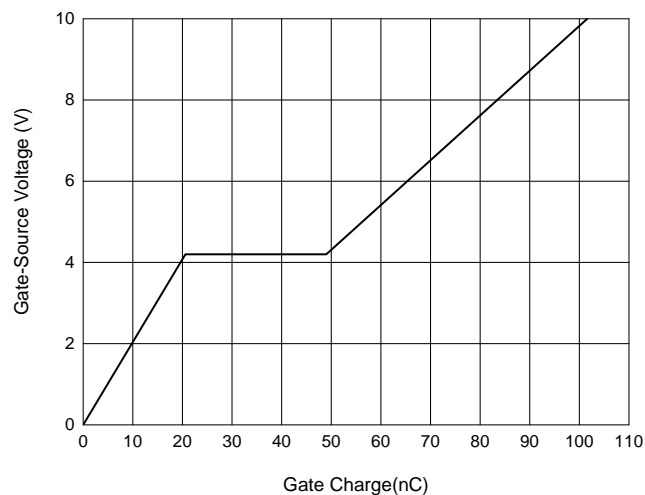


Fig. 5 - $I_S - V_{SD}$

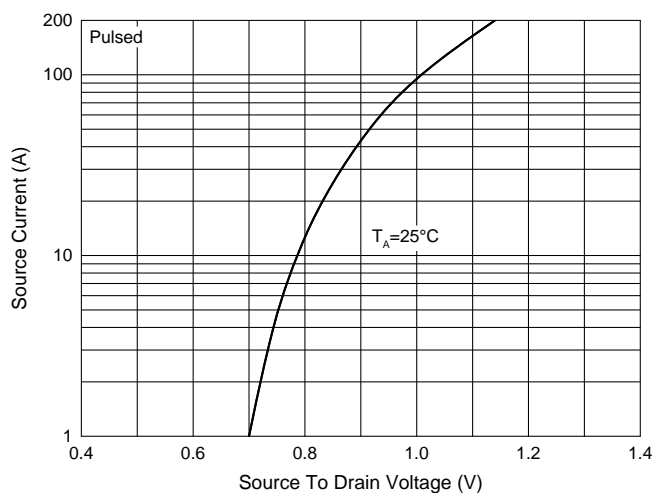
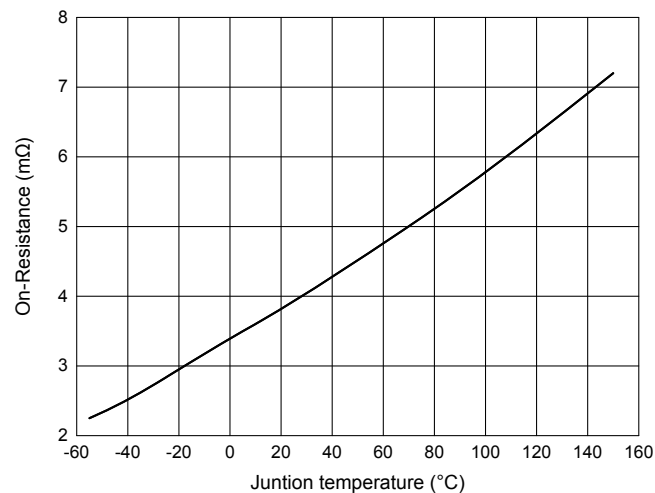


Fig. 6 - On-Resistance Characteristics



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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