

Features

- Fast Switching
- Improved dv/dt Capability
- 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

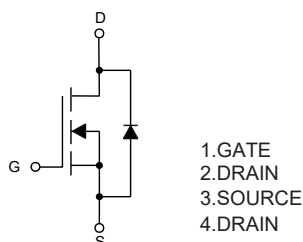
- Operating Junction Temperature Range : -55°C to +175°C
- Storage Temperature Range: -55°C to +175°C
- Thermal Resistance: 1.76°C/W Junction to Case^(Note 1)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V _{DS}	60	V
Gate-Source Voltage		V _{GS}	±20	V
Continuous Drain Current	T _C =25°C	I _D	85	A
	T _C =100°C		59	A
Pulsed Drain Current		I _{DM}	150	A
Single Pulse Avalanche Energy ^(Note 2)		E _{AS}	290	mJ
Total Power Dissipation		P _D	85	W

Note: 1.Surface Mounted on FR4 Board, $t \leq 10$ sec.

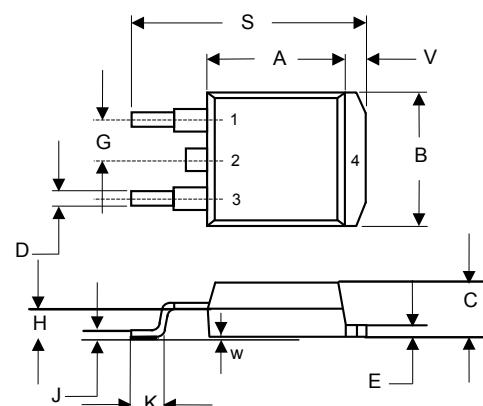
2.EAS Condition: $T_J=25^\circ\text{C}$, $V_{DD}=30\text{V}$, $V_G=10\text{V}$, $L=0.5\text{mH}$, $R_g=25\Omega$.

Internal Structure



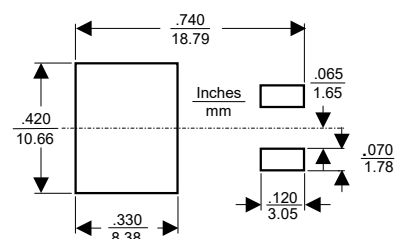
N-CHANNEL MOSFET

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



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 ^(Note 3)	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1	1.6	2.4	V
Drain-Source On-Resistance ^(Note 3)	R _{DS(on)}	V _{GS} =10V, I _D =30A		11.3	13	mΩ
Forward Tranconductance ^(Note 3)	g _{FS}	V _{DS} =10V, I _D =5.5A	30			S
Dynamic Characteristics ^(Note 4)						
Input Capacitance	C _{iss}	V _{DS} =25V,V _{GS} =0V,f=1MHz		2498		pF
Output Capacitance	C _{oss}			185		
Reverse Transfer Capacitance	C _{rss}			80		
Total Gate Charge	Q _g	V _{DS} =30V,V _{GS} =10V,I _D =30A		36		nC
Gate-Source Charge	Q _{gs}			9.6		
Gate-Drain Charge	Q _{gd}			6.6		
Turn-On Delay Time	t _{d(on)}	V _{DD} =30V,I _D =2A,R _L =1Ω V _{GS} =10V,R _{GEN} =3Ω		12		ns
Turn-On Rise Time	t _r			5.2		
Turn-Off Delay Time	t _{d(off)}			38		
Turn-Off Fall Time	t _f			27		
Drain-Source Body Diode Characteristics						
Continuous Body Diode Current	I _S				85	A
Body Diode Voltage ^(Note 3)	V _{SD}	I _S =20A, V _{GS} =0V			1.4	V
Reverse Recovery Time	t _{rr}	T _J =25°C, I _F =30A, di/dt=100A/μs ^(Note 3)		280		ns
Reverse Recovery Charge	Q _{rr}			2.8		μC
Forward Turn-On Time	t _{on}	Intrinsic Turn-On Time is Negligible (Turn-On is Dominated by LS+LD)				

Note 3. Pulse Test : Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 1\%$.

4. Guaranteed by Design, Not Subject to Production Testing.

Curve Characteristics

Fig. 1 - Typical Output Characteristics

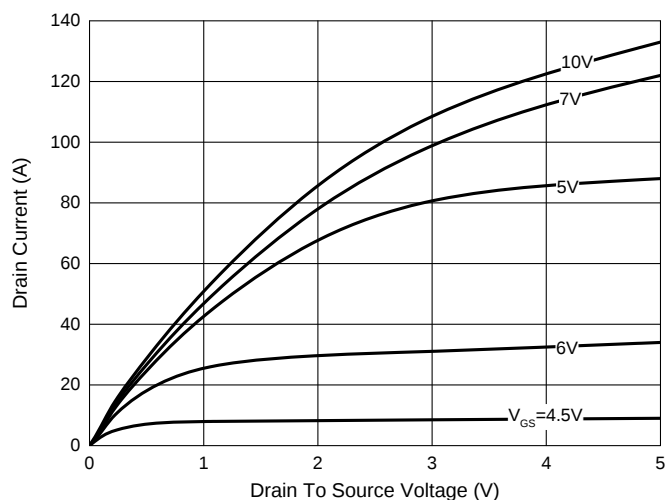


Fig. 2 - Transfer Characteristics

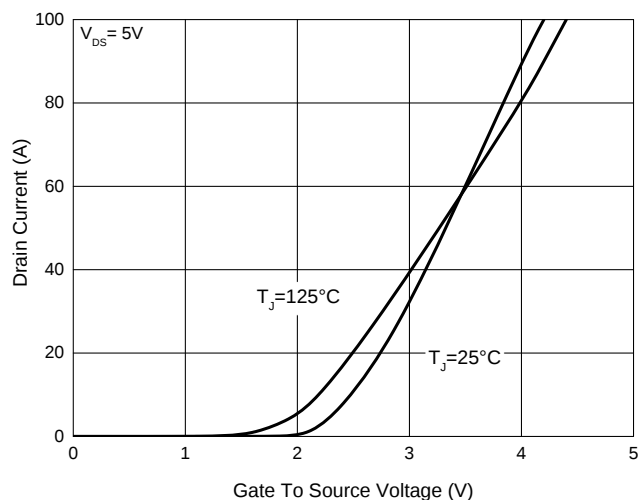


Fig. 3 - Capacitance Characteristics

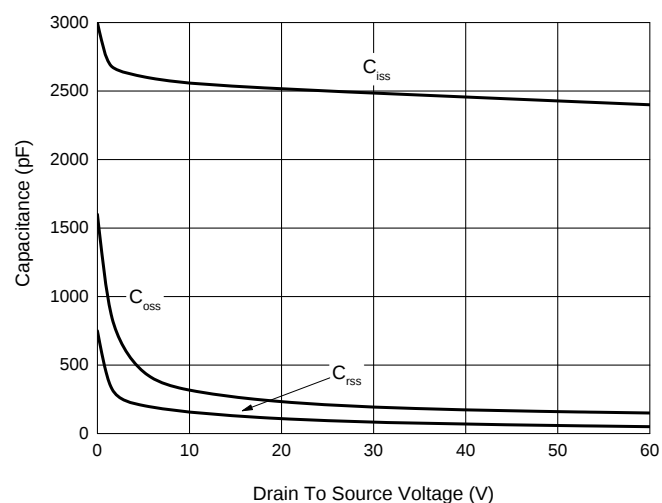


Fig. 4 - Gate Charge Characteristics

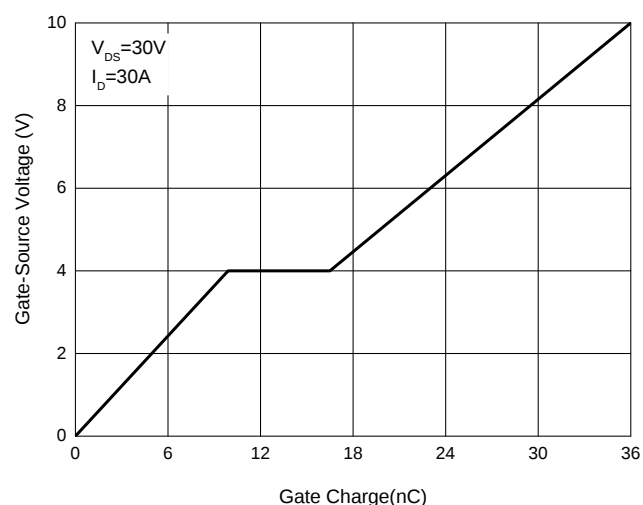


Fig. 5 - $R_{DS(ON)}-I_D$

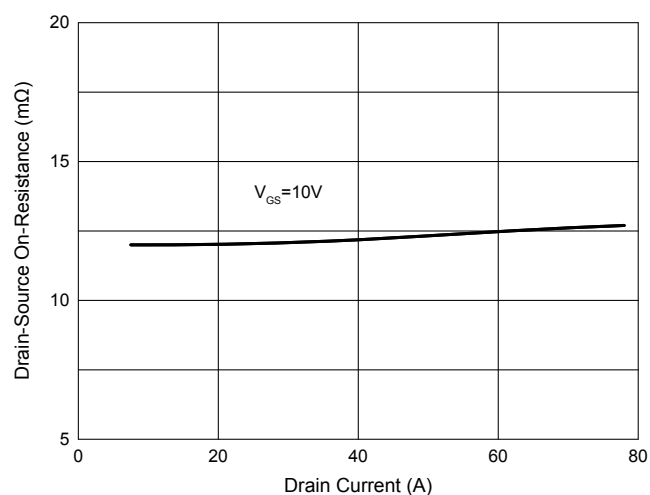
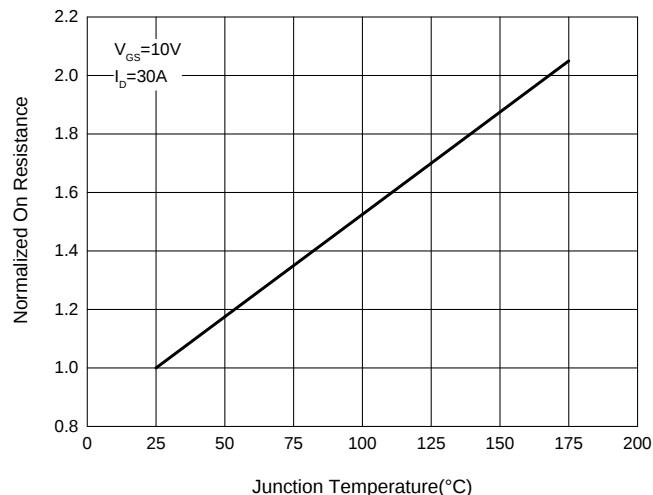


Fig. 6 - Normalized On Resistance Characteristics



Ordering Information

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

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

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