

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)

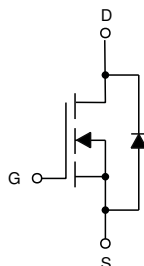
Maximum Ratings

- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 60°C/W Junction to Ambient
- Thermal Resistance: 2.8°C/W Junction to Case

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	400	V
Gate-Source Voltage	V_{GS}	±30	V
Continuous Drain Current	I_D	6	A
Pulsed Drain Current ^(Note 1)	I_{DM}	24	A
Total Power Dissipation ($T_C=25^\circ\text{C}$)	P_D	45	W
Single Pulsed Avalanche Energy ^(Note2)	E_{AS}	115	mJ
Repetitive Avalanche Energy ^(Note1)	E_{AR}	14	mJ

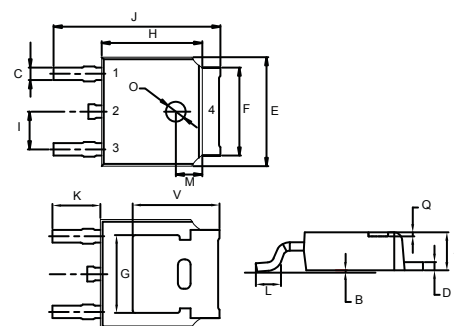
Note 1.Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature.
2.L=10.0mH, $V_{DD}=50\text{V}$, $R_G=25\Omega$, Starting $T_J=25^\circ\text{C}$.

Internal Structure



N-CHANNEL MOSFET

DPAK(TO-252)



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

DIM	DIMENSIONS				NOTE
	INCHES		MM		
	MIN	MAX	MIN	MAX	
A	0.087	0.094	2.20	2.40	
B	0.000	0.005	0.00	0.13	
C	0.026	0.034	0.66	0.86	
D	0.018	0.023	0.46	0.58	
E	0.256	0.264	6.50	6.70	
F	0.201	0.215	5.10	5.46	
G	0.190		4.83		TYP.
H	0.236	0.244	6.00	6.20	
I	0.086	0.094	2.18	2.39	
J	0.386	0.409	9.80	10.40	
K	0.114		2.90		TYP.
L	0.055	0.067	1.40	1.70	
M	0.063		1.60		TYP.
O	0.043	0.051	1.10	1.30	
Q	0.000	0.012	0.00	0.30	
V	0.211		5.35		TYP.

Electrical Characteristics @ 25°C (Unless Otherwise Specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	400			V
Gate-Source Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 30V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=400V, V_{GS}=0V$			1	μA
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	3		4	V
Drain-Source On-Resistance ^(Note 3)	$R_{DS(on)}$	$V_{GS}=10V, I_D=3A$		0.86	1	Ω
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS}=25V, V_{GS}=0V, f=1MHz$		462		pF
Output Capacitance	C_{oss}			54.2		
Reverse Transfer Capacitance	C_{rss}			8.8		
Turn-On Delay Time	$t_{d(on)}$	$V_{DS}=200V, I_D=3A, R_{GEN}=25\Omega$		10		ns
Turn-On Rise Time	t_r			25		
Turn-Off Delay Time	$t_{d(off)}$			40		
Turn-Off Fall Time	t_f			52		
Total Gate Charge	Q_g	$V_{DS}=320V, V_{GS}=10V, I_D=3A$		13.5	17.5	nC
Gate-Source Charge	Q_{gs}			2		
Gate-Drain Charge	Q_{gd}			6		
Body Diode Characteristics						
Diode Forward Current	I_S	$T_C=25^\circ C$			6	A
Pulsed Source Current	I_{SP}				24	
Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=3A$			1.4	V
Reverse Recovery Time	t_{rr}	$I_S=3A, di/dt=100A/\mu s$		220		ns
Reverse Recovery Charge	Q_{rr}				3	μC

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

Curve Characteristics

Fig. 1 - Typical Output Characteristics

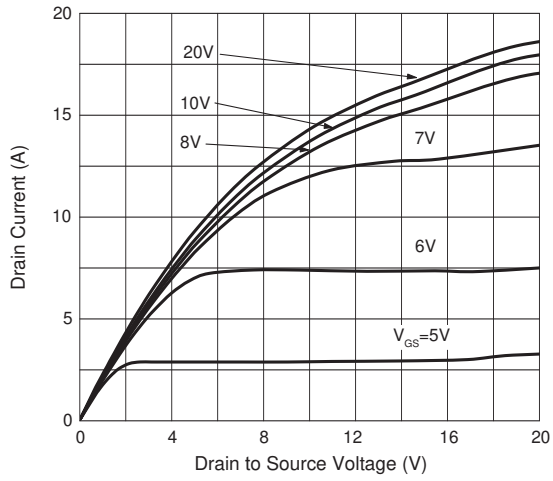


Fig. 2 - Transfer Characteristics

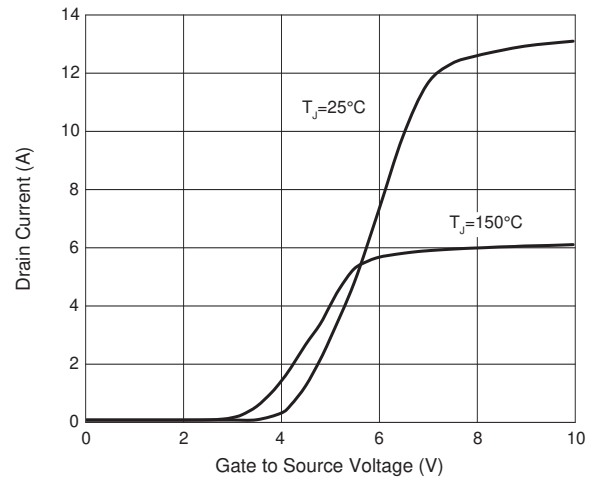


Fig. 3 - Capacitance Characteristics

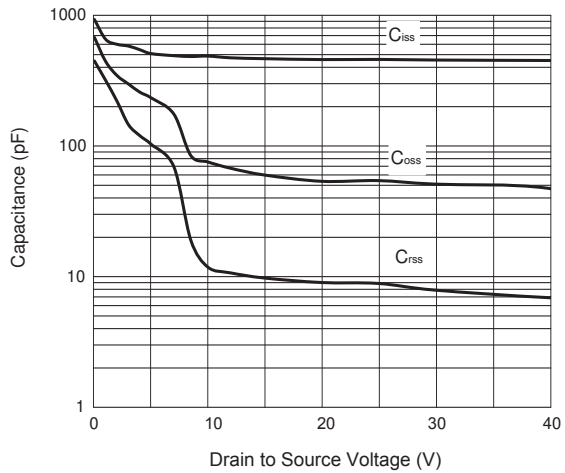


Fig. 4 - Normalized On-Resistance

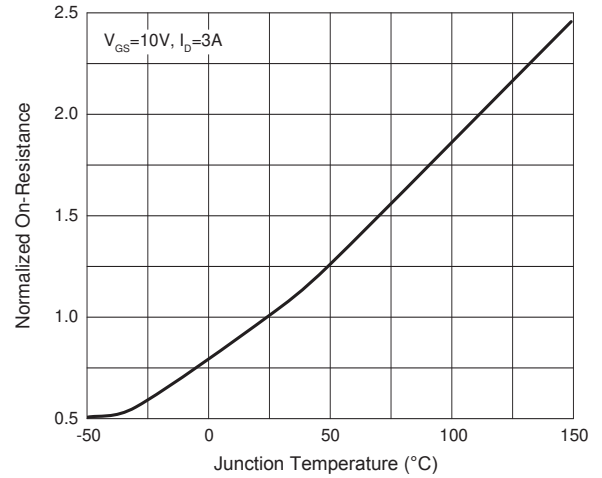


Fig. 5 - $I_S - V_{SD}$

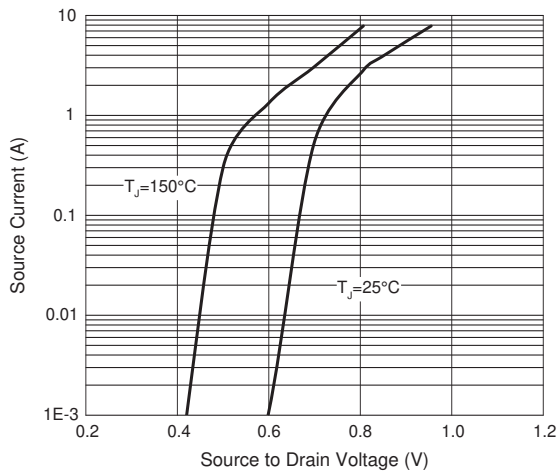
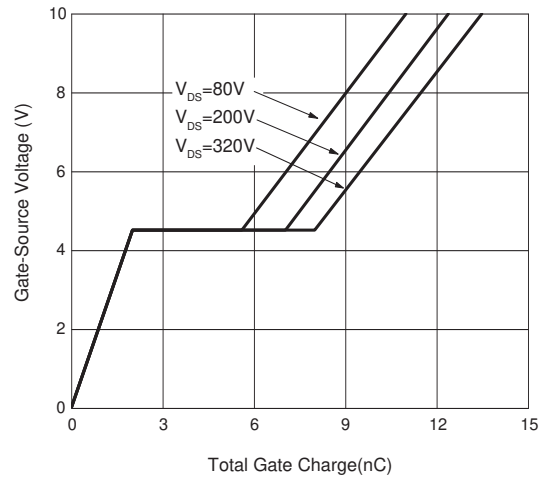


Fig. 6 - Total Gate Charge Characteristics



Ordering Information

Device	Packing
Part Number-TP	Tape&Reel: 2.5Kpcs/Reel

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

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