

Features

- Fast Switching
- Improved dv/dt Capability
- Excellent Package for Good Heat Dissipation
- 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:1.5°C/W Junction to Case

Parameter	Symbol	Rating	Unit	
Drain-Source Voltage	V_{DS}	200	V	
Gate-Source Voltage	V_{GS}	±30	V	
Continuous Drain Current	I_D	$T_C=25^\circ\text{C}$	9	A
		$T_C=100^\circ\text{C}$	5.83	A
Pulsed Drain Current ^(Note 1)	I_{DM}	36	A	
Single Pulse Avalanche Energy ^(Note 2)	E_{AS}	320	mJ	
Peak Diode Recovery Energy ^(Note 3)	dV/dt	5	V/ns	
Total Power Dissipation	P_D	83	W	

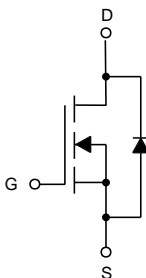
Note:

1. Pulse Width Limited by Maximum Junction Temperature.

2. $L=10\text{mH}$, $I_{AS}=8\text{A}$, $V_{DD}=50\text{V}$, $R_G=25\Omega$, Starting $T_J=25^\circ\text{C}$

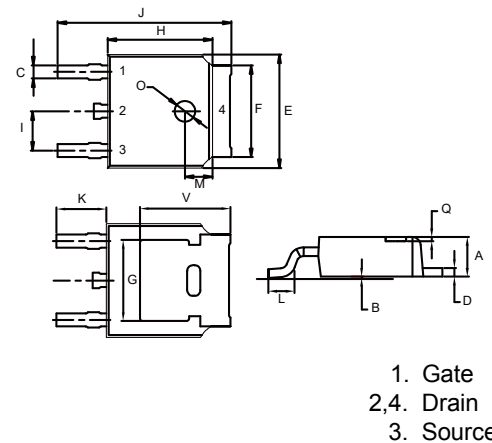
3. $I_{SD}\leq 9\text{A}$, $di/dt\leq 200\text{A}/\mu\text{s}$, $V_{DD}\leq BV_{DSS}$, Starting $T_J=25^\circ\text{C}$.

Internal Structure



N-CHANNEL MOSFET

DPAK(TO-252)



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	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	200			V
Breakdown Voltage Temperature Coefficient	$\frac{\Delta V_{(BR)DSS}}{\Delta T_J}$	Reference to 25°C, $I_D=250\mu A$		0.25		V/°C
Gate-Source Leakage Current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 30V$			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=200V, V_{GS}=0V$			1	μA
		$V_{DS}=160V, V_{GS}=0V, T_C=125^\circ C$			10	
Gate-Threshold Voltage ^(Note 4)	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1	1.9	3	V
Drain-Source On-Resistance ^(Note 4)	$R_{DS(on)}$	$V_{GS}=10V, I_D=4.5A$		0.21	0.25	Ω
Forward Transconductance ^(Note 4)	g_{FS}	$V_{DS}=30V, I_D=4.5A$		9.2		S
Dynamic Characteristics^(Note 5)						
Input Capacitance	C_{iss}	$V_{DS}=25V, V_{GS}=0V, f=1MHz$		509		pF
Output Capacitance	C_{oss}			51.5		
Reverse Transfer Capacitance	C_{rss}			3.2		
Total Gate Charge	Q_g	$V_{DD}=160V, V_{GS}=10V, I_D=9A$		11.8		nC
Gate-Source Charge	Q_{gs}			2.36		
Gate-Drain Charge	Q_{gd}			3.98		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=100V, I_D=9A, R_G=10\Omega, V_{GS}=10V$		10.33		ns
Turn-On Rise Time	t_r			10.7		
Turn-Off Delay Time	$t_{d(off)}$			29.1		
Turn-Off Fall Time	t_f			11.1		
Drain-Source Body Diode Characteristics						
Continuous Body Diode Current	I_S	$T_C=25^\circ C$			9	A
Pulsed Diode Forward Current	I_{SM}				36	
Body Diode Voltage	V_{SD}	$I_S=9A, V_{GS}=0V$			1.4	V
Reverse Recovery Time	t_{rr}	$V_{GS}=0V, I_F=9A, di/dt=100A/\mu s$		201		ns
Reverse Recovery Charge	Q_{rr}				663	

Note 4. Pulse Test : Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.

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

Curve Characteristics

Fig. 1 - Output Characteristics

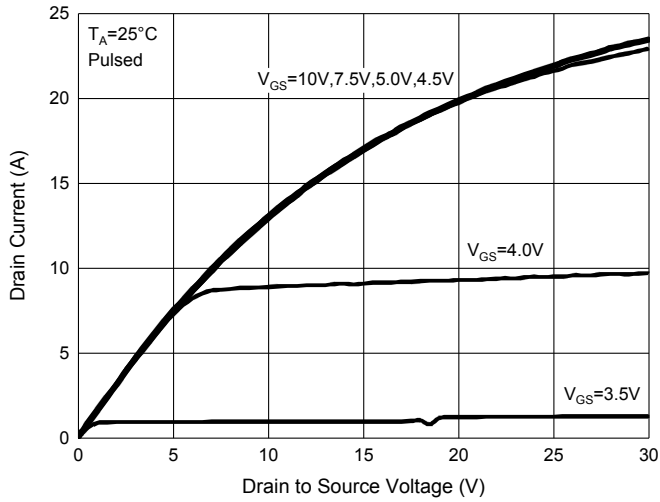


Fig. 2 - Transfer Characteristics

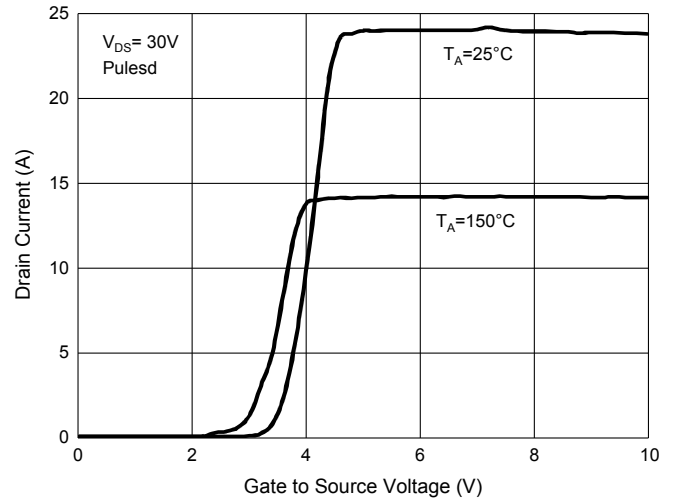


Fig. 3 - $R_{DS(ON)} - I_D$

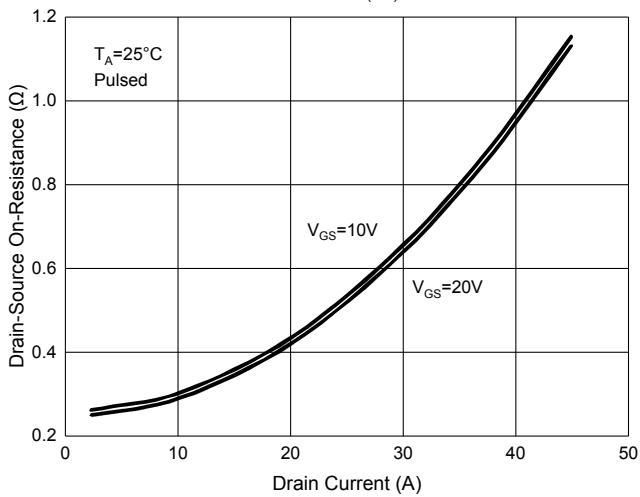


Fig. 4 - $I_S - V_{SD}$

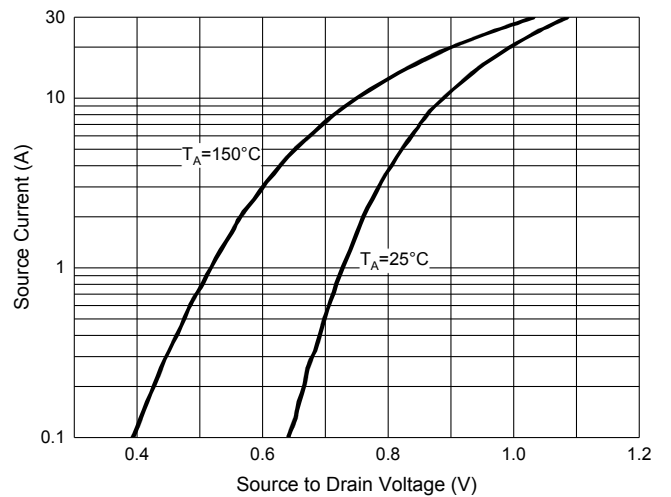


Fig. 5 - Capacitance Characteristics

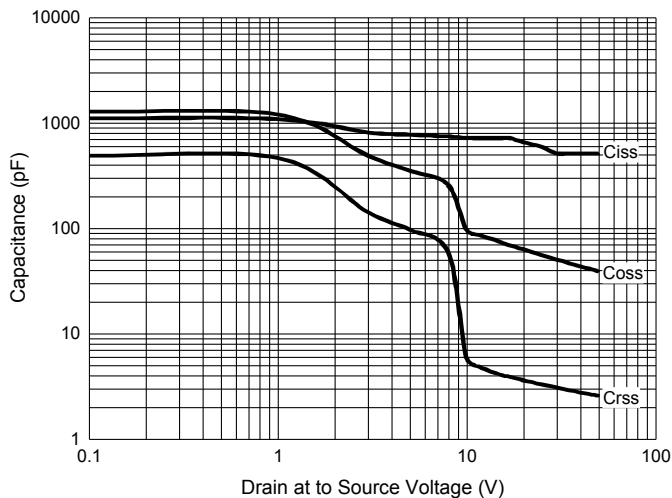
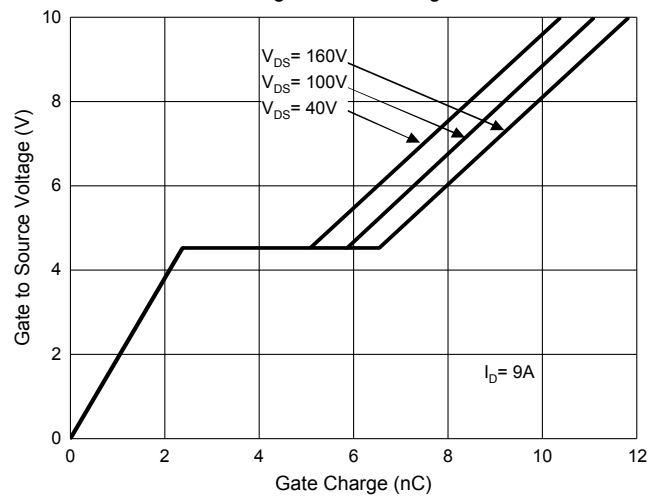


Fig. 6 - Gate Charge



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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