

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: 1.6°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	T _C =25°C	I _D	5	A
	T _C =100°C		3.24	A
Pulsed Drain Current ^(Note 1)		I _{DM}	20	A
Single Pulse Avalanche Energy ^(Note 2)		E _{AS}	125	mJ
Peak Diode Recovery Energy ^(Note 3)		dV/dt	5	V/ns
Total Power Dissipation		P _D	78	W

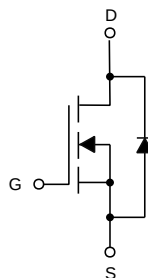
Note:

1. Pulse Width Limited by Maximum Junction Temperature.

2. $L=10\text{mH}$, $I_{AS}=5\text{A}$, $V_{DD}=50\text{V}$, $R_G=25\Omega$, Starting $T_J=25^\circ\text{C}$.

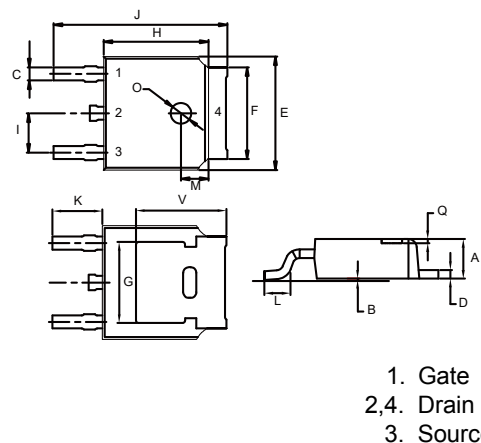
3. $I_{SD}\leq 5\text{A}$, $di/dt\leq 200\text{A}/\mu\text{s}$, $V_{DD}\leq BV_{DSS}$, Starting $T_J=25^\circ\text{C}$.

Internal Structure



N-CHANNEL MOSFET

DPAK(TO-252)



DIM	INCHES		MM		NOTE
	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 =250μA	200			V
Breakdown Voltage Temperature Coefficient	ΔV _{(BR)DSS} / ΔT _J	Reference to 25°C, I _D = 250μA		0.25		V/°C
Gate-Source Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±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°C			10	
Gate-Threshold Voltage ^(Note 4)	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1	1.9	3	V
Drain-Source On-Resistance ^(Note 4)	R _{DS(on)}	V _{GS} =10V, I _D =2.5A		0.49	0.58	Ω
Forward Tranconductance ^(Note 4)	g _{FS}	V _{DS} =30V, I _D =2.5A		5.2		S
Dynamic Characteristics ^(Note 5)						
Input Capacitance	C _{iss}	V _{DS} =25V,V _{GS} =0V,f=1MHz		255		pF
Output Capacitance	C _{oss}			30.2		
Reverse Transfer Capacitance	C _{rss}			2.3		
Total Gate Charge	Q _g	V _{DD} =160V,V _{GS} =10V,I _D =5A		10.8		nC
Gate-Source Charge	Q _{gs}			1.7		
Gate-Drain Charge	Q _{gd}			3.1		
Turn-On Delay Time	t _{d(on)}	V _{DD} =100V, I _D =5A, R _G =10Ω, V _{GS} =10V		7.33		ns
Turn-On Rise Time	t _r			10.7		
Turn-Off Delay Time	t _{d(off)}			18.2		
Turn-Off Fall Time	t _f			11.9		
Drain-Source Body Diode Characteristics						
Continuous Body Diode Current	I _S	T _C =25°C			5	A
Pulsed Diode Forward Current	I _{SM}				20	
Body Diode Voltage	V _{SD}	I _S =5A, V _{GS} =0V			1.4	V
Reverse Recovery Time	t _{rr}	V _{GS} =0V, I _F =5A,di/dt=100A/μs		125.5		ns
Reverse Recovery Charge	Q _{rr}				357	nC

Note: 4. Pulse Test : Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.

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

Curve Characteristics

Fig. 1 - Output Characteristics

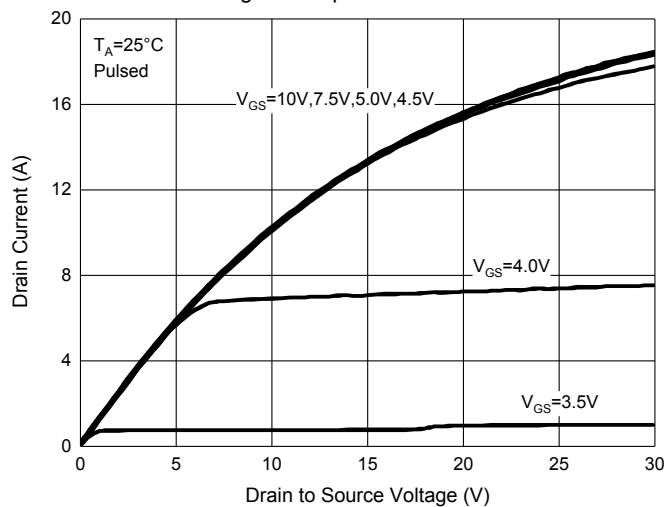


Fig. 2 - Transfer Characteristics

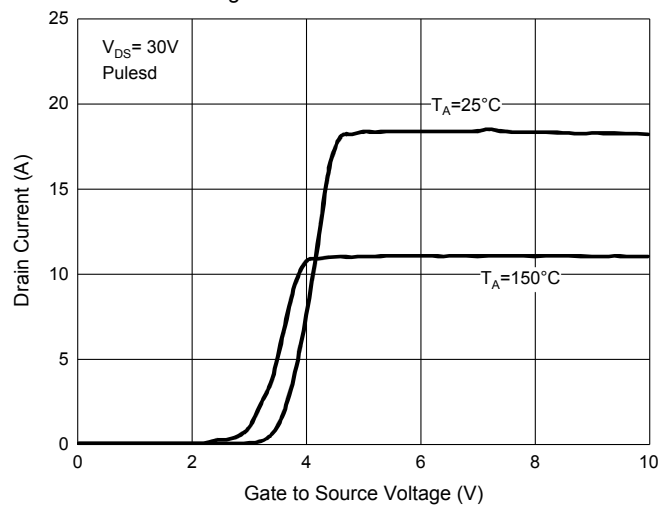


Fig. 3 - $R_{DS(ON)} - I_D$

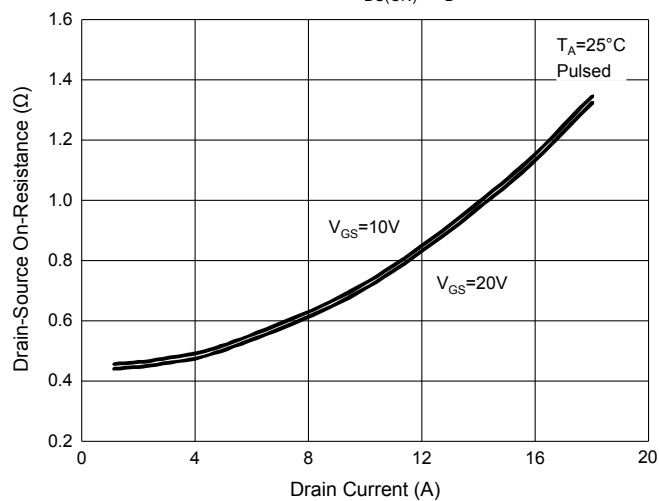


Fig. 4 - $I_S - V_{SD}$

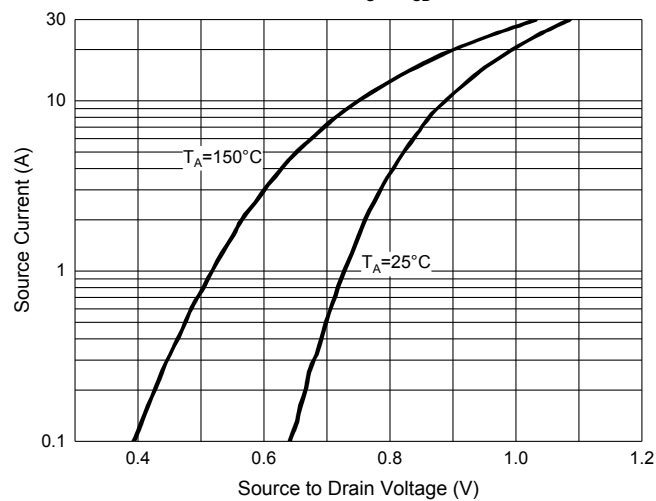


Fig. 5 - Capacitance Characteristics

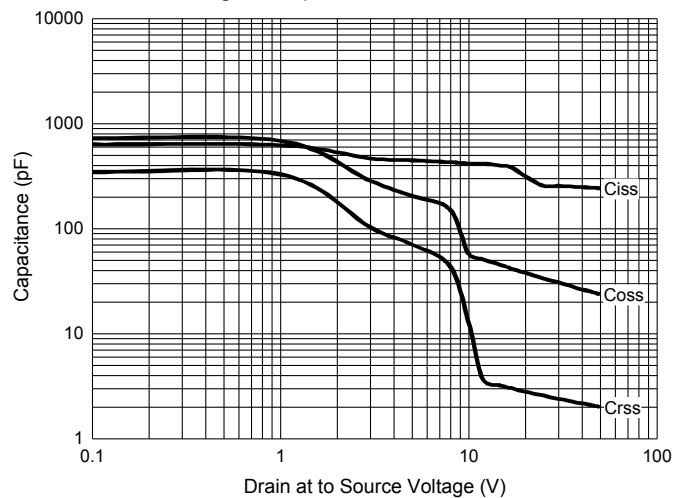
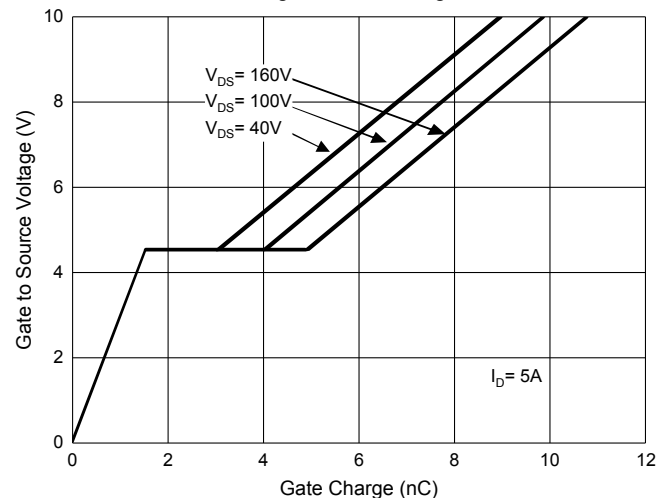


Fig. 6 - Gate Charge



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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