

Features

- High Density Cell Design for Ultra Low $R_{DS(on)}$
- Fully Characterized Avalanche Voltage and Current
- Excellent Package for Good Heat Dissipation
- Special Process Technology for High ESD 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)

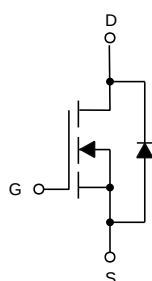
Maximum Ratings

- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 100°C/W Junction to Ambient

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	20	A
Pulsed Drain Current	I_{DM}	60	A
Single Pulse Avalanche Energy (Note 1)	E_{AS}	72	mJ

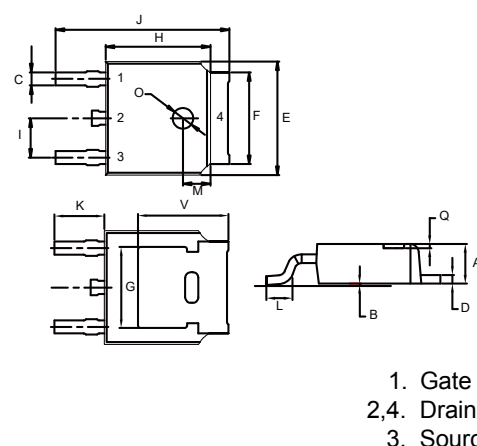
Note: 1. $V_{DD}=30V$, $L=0.5mH$, $R_G=25\Omega$, Starting $T_J=25^\circ C$.

Internal Structure



N-CHANNEL MOSFET

DPAK(TO-252)



DIMENSIONS					
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	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 2)	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1	2	3	V
Drain-Source On-Resistance ^(Note 2)	R _{DS(on)}	V _{GS} =10V, I _D =20A		37	45	mΩ
Dynamic Characteristics ^(Note 3)						
Input Capacitance	C _{iss}	V _{DS} =30V,V _{GS} =0V,f=1MHz		500		pF
Output Capacitance	C _{oss}			60		
Reverse Transfer Capacitance	C _{rss}			25		
Total Gate Charge	Q _g	V _{DS} =48V,V _{GS} =10V,I _D =15A		12		nC
Gate-Source Charge	Q _{gs}			4.1		
Gate-Drain Charge	Q _{gd}			4.5		
Turn-On Delay Time	t _{d(on)}	V _{DD} =30V, R _G =3Ω, I _D =2A, V _{GS} =10V		5		ns
Turn-On Rise Time	t _r			2.6		
Turn-Off Delay Time	t _{d(off)}			16.1		
Turn-Off Fall Time	t _f			2.3		
Drain-Source Body Diode Characteristics						
Continuous Body Diode Current	I _S				20	A
Pulsed Diode Forward Current	I _{SM}				60	
Body Diode Voltage	V _{SD}	I _S =20A, V _{GS} =0V			1.2	V

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

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

Curve Characteristics

Fig. 1 - Output Characteristics

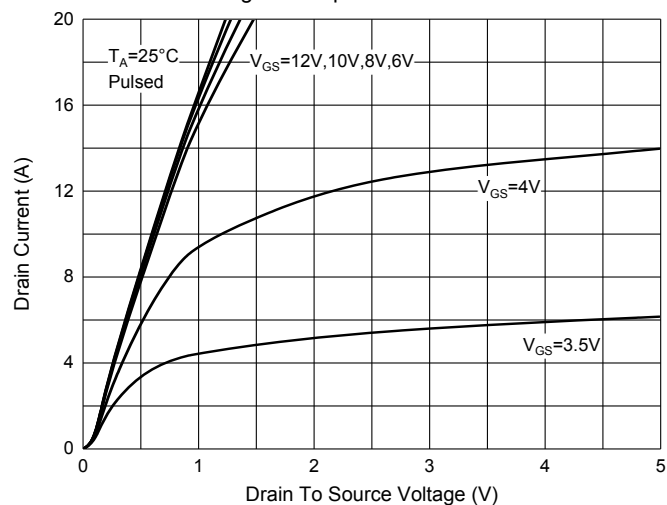


Fig. 2 - Transfer Characteristics

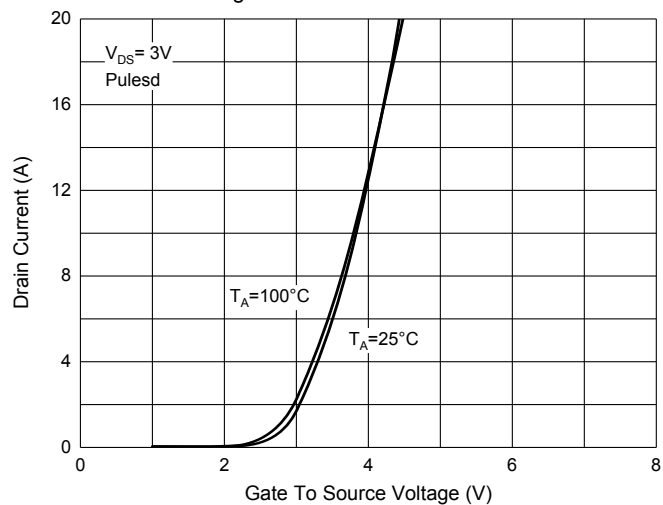


Fig. 3 - $R_{DS(ON)} - I_D$

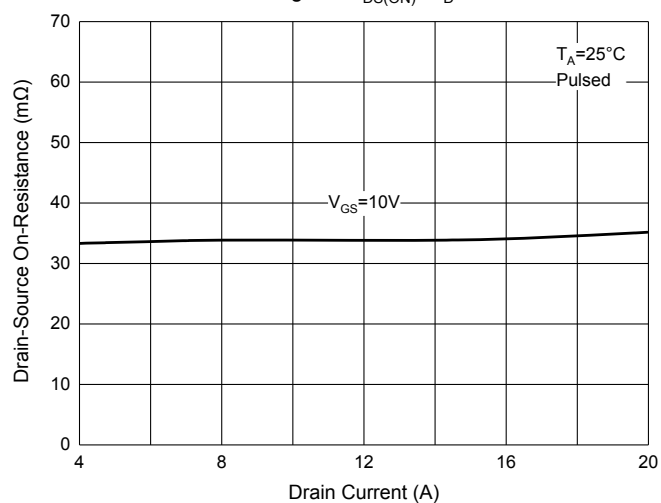


Fig. 4 - $R_{DS(ON)} - V_{GS}$

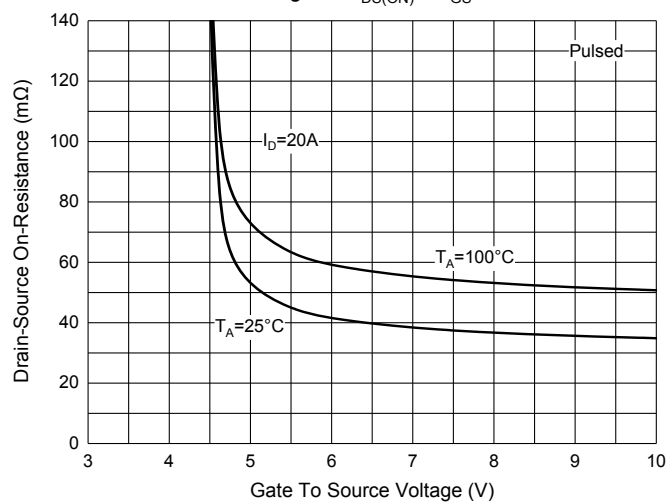


Fig. 5 - $I_S - V_{SD}$

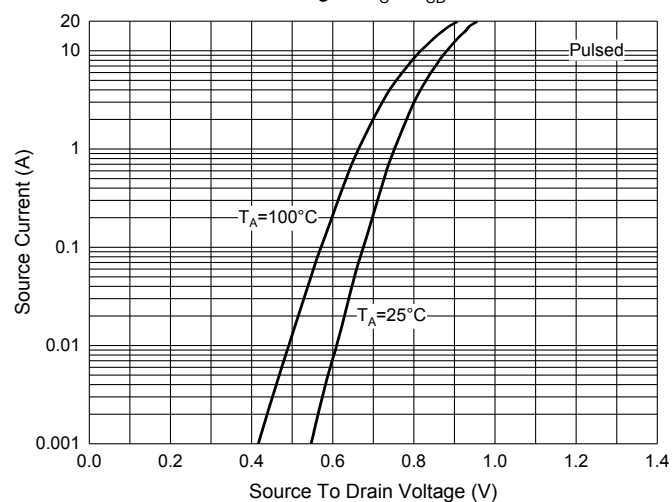
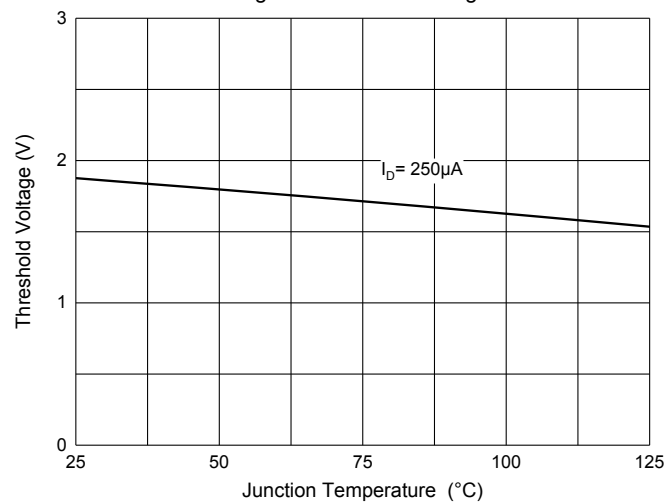


Fig. 6 - Threshold Voltage



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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