

Features

- High Density Cell Desihn for Ultra Low $R_{DS(on)}$
- Fully Characterized Avalanche Voltage and Current
- 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

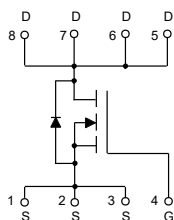
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 5°C/W Junction to Case^(Note 1)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V _{DS}	30	V
Gate-Source Voltlage		V _{GS}	±20	V
Continuous Drain Current	T _C =25°C	I _D	30	A
	T _C =100°C		21	A
Pulsed Drain Current ^(Note 2)		I _{DM}	60	A
Single Pulse Avalanche Energy ^(Note 3)		E _{AS}	70	mJ
Total Power Dissipation		P _D	25	W

Note:

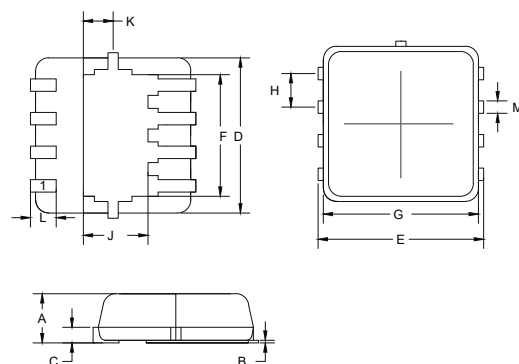
- 1.Surface Mounted on FR4 Board, $t \leq 10$ sec.
- 2.Pulse Width Limited by Maximum Junction Temperature.
- 3.EAS Condition: $T_J=25^{\circ}\text{C}$, $V_{DD}=15\text{V}$, $V_G=10\text{V}$, $L=0.1\text{mH}$, $R_g=25\Omega$.

Internal Structure



N-CHANNEL MOSFET

DFN3030



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.028	0.035	0.70	0.90	
B	0.000	0.002	0.00	0.05	
C	0.004	0.010	0.10	0.25	
D		0.118		3.00	TYP.
E		0.126		3.20	TYP.
F		0.093		2.35	TYP.
G		0.118		3.00	TYP.
H		0.026		0.65	TYP.
J		0.069		1.75	TYP.
K		0.023		0.575	TYP.
L	0.012	0.020	0.30	0.50	
M	0.009	0.014	0.24	0.35	

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	30	33		V
Gate-Source Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =30V, V _{GS} =0V			1	μA
Gate-Threshold Voltage ^(Note 4)	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1	1.5	2.3	V
Drain-Source On-Resistance ^(Note 4)	R _{DS(on)}	V _{GS} =10V, I _D =10A		6.3	9	mΩ
		V _{GS} =4.5V, I _D =10A		9.2	13	
Forward Tranconductance ^(Note 4)	g _{FS}	V _{DS} =5V, I _D =20A	15			S
Dynamic Characteristics ^(Note 5)						
Input Capacitance	C _{iss}	V _{DS} =15V, V _{GS} =0V, f=1MHz		1490		pF
Output Capacitance	C _{oss}			220		
Reverse Transfer Capacitance	C _{rss}			135		
Total Gate Charge	Q _g	V _{DS} =15V, V _{GS} =10V, I _D =9A		15		nC
Gate-Source Charge	Q _{gs}			3		
Gate-Drain Charge	Q _{gd}			4.5		
Turn-On Delay Time	t _{d(on)}	V _{DD} =15V, I _D =10A V _{GS} =10V, R _{GEN} =1.8Ω		10		ns
Turn-On Rise Time	t _r			8		
Turn-Off Delay Time	t _{d(off)}			30		
Turn-Off Fall Time	t _f			5		
Drain-Source Body Diode Characteristics						
Continuous Body Diode Current	I _S				25	A
Body Diode Voltage	V _{SD}	I _{SD} =10A, V _{GS} =0V		0.85	1.2	V
Reverse Recovery Time	t _{rr}	T _J =25°C, I _F =10A, di/dt=100A/μs		22	35	ns
Reverse Recovery Charge	Q _{rr}			12	20	nC
Forward Turn-On Time	t _{on}	Intrinsic Turn-On Time is Negligible (Turn-On is Dominated by LS+LD)				

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

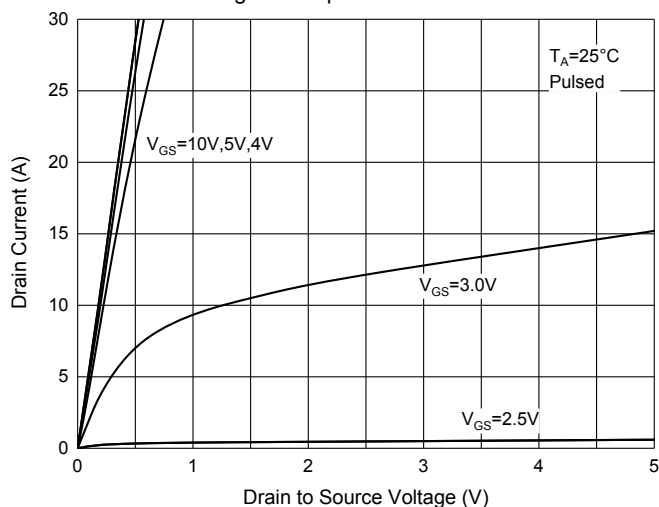


Fig. 2 - Transfer Characteristics

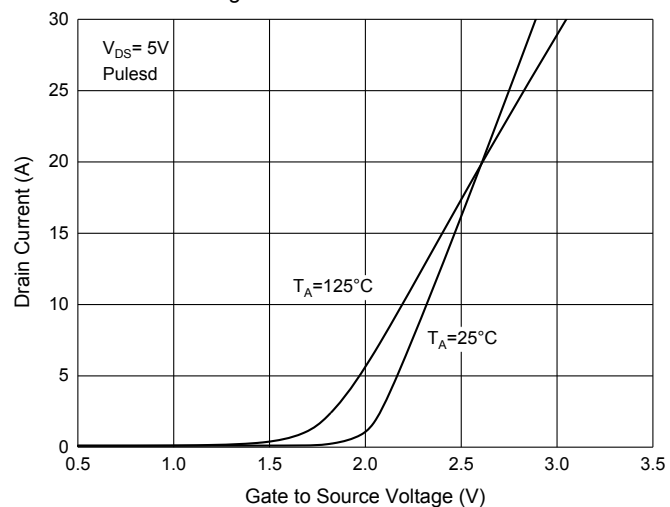


Fig. 3 - $R_{DS(ON)} - I_D$

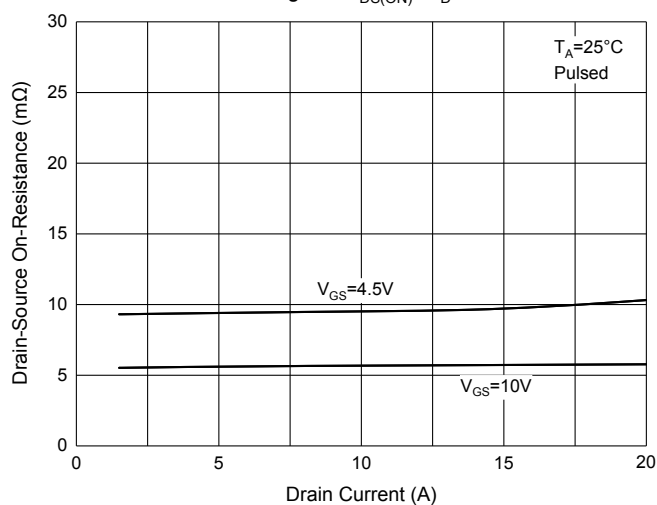


Fig. 4 - $I_S - V_{SD}$

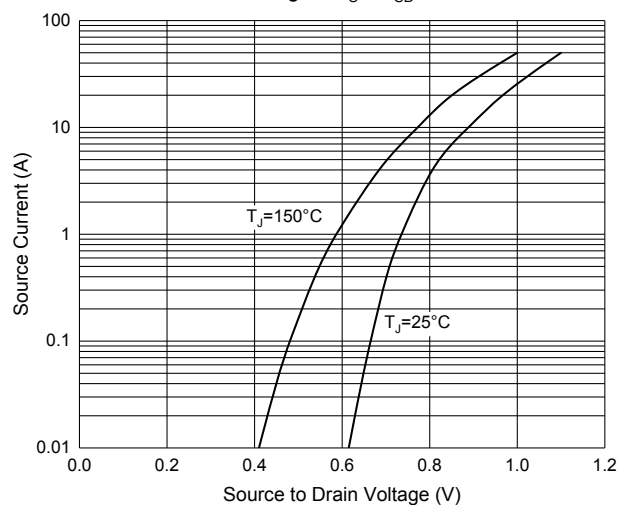


Fig. 5 - $R_{DS(ON)} - \text{Temperature}$

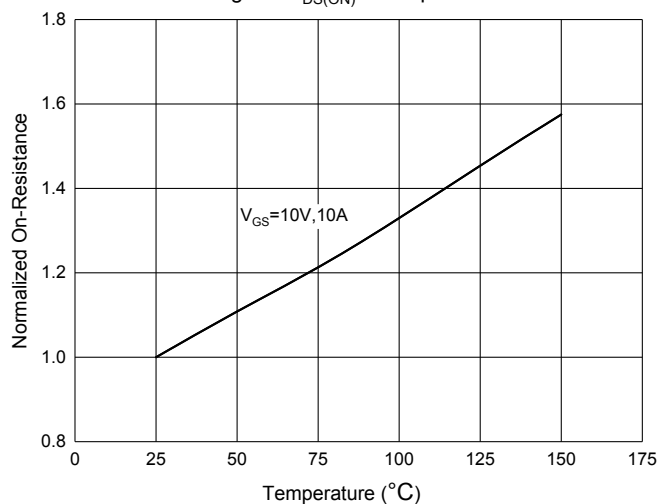
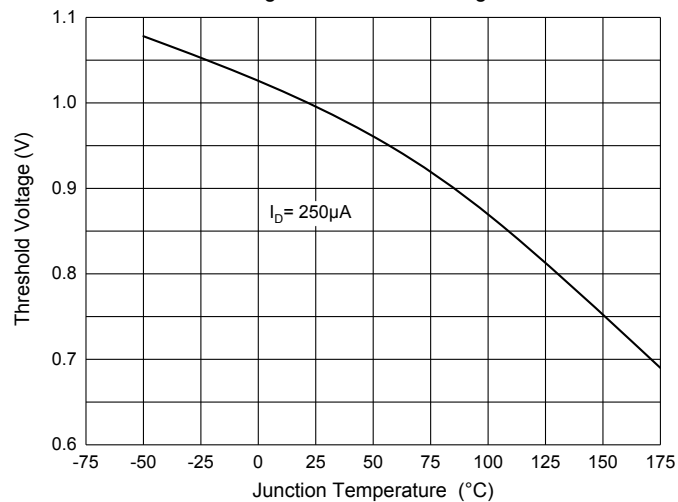


Fig. 6 - Threshold Voltage



Ordering Information

Device	Packing
Part Number-TP	Tape&Reel: 3Kpcs/Reel

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

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