

Features

- High Power and Current Handling 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

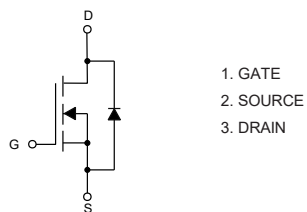
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 100°C/W Junction to Ambient^(Note1)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	±10	V
Continuous Drain Current	I_D	6	A
Pulsed Drain Current ^(Note2)	I_{DM}	30	A
Total Power Dissipation	P_D	1.25	W

Note 1. Surface Mounted on FR4 Board , $t \leq 10s$.

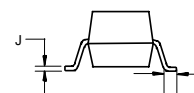
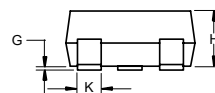
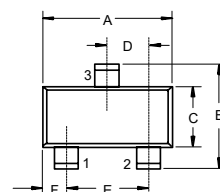
2. Repetitive Rating: Pulse Width Limited by Max. Junction Temperature.

Internal Structure



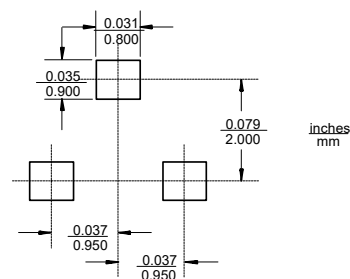
N-CHANNEL MOSFET

SOT-23



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.110	0.120	2.80	3.04	
B	0.083	0.104	2.10	2.64	
C	0.047	0.055	1.20	1.40	
D	0.034	0.041	0.85	1.05	
E	0.067	0.083	1.70	2.10	
F	0.018	0.024	0.45	0.60	
G	0.0004	0.006	0.01	0.15	
H	0.035	0.043	0.90	1.10	
J	0.003	0.007	0.08	0.18	
K	0.012	0.020	0.30	0.51	
L	0.007	0.020	0.20	0.50	

Suggested Solder Pad Layout



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	20	22		V
Gate-Source Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±10V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =20V, V _{GS} =0V			1	μA
Gate-Threshold Voltage ^(Note 3)	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	0.5	0.7	1.0	V
Drain-Source On-Resistance ^(Note 3)	R _{DS(on)}	V _{GS} =4.5V, I _D =5A		20	28	mΩ
		V _{GS} =2.5V, I _D =4A		27	35	
Forward Transconductance ^(Note 3)	g _{FS}	V _{DS} =5V, I _D =6A		25		S
Dynamic Characteristics ^(Note 4)						
Input Capacitance	C _{iss}	V _{DS} =10V, V _{GS} =0V, f=1MHz		515		pF
Output Capacitance	C _{oss}			90		
Reverse Transfer Capacitance	C _{rss}			72		
Switching Characteristics ^(Note 4)						
Total Gate Charge	Q _g	V _{DS} =10V, V _{GS} =10V, I _D =6A		12		nC
Gate-Source Charge	Q _{gs}			1		
Gate-Drain Charge	Q _{gd}			2		
Turn-On Delay Time	t _{d(on)}	V _{GS} =10V, V _{DD} =10V, R _L =1.7Ω, R _{GEN} =3Ω		3		ns
Turn-On Rise Time	t _r			7.5		
Turn-Off Delay Time	t _{d(off)}			20		
Turn-Off Fall Time	t _f			6		
Drain-Source Diode Characteristics						
Diode Forward Voltage ^(Note 3)	V _{SD}	V _{GS} =0V, I _S =1A			1.2	V
Diode Forward Current ^(Note 2)	I _S				6	A

Note: 3. Pulse Test : Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.

4. Guaranteed by Design, Not Subject to Producing.

Curve Characteristics

Fig. 1 - Output Characteristics

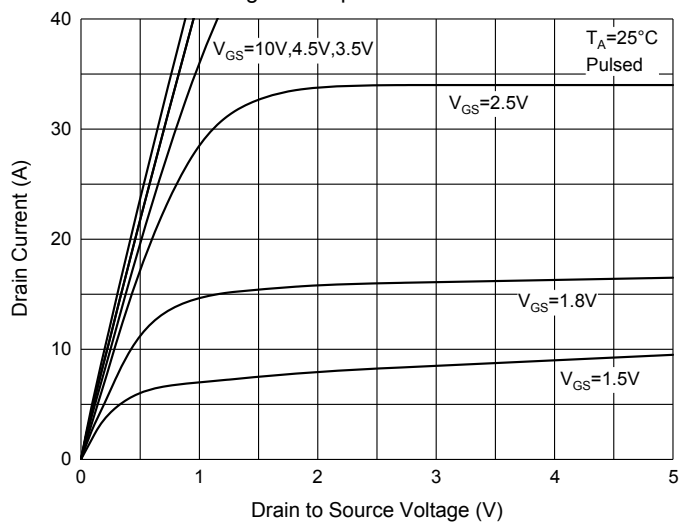


Fig. 2 - Transfer Characteristics

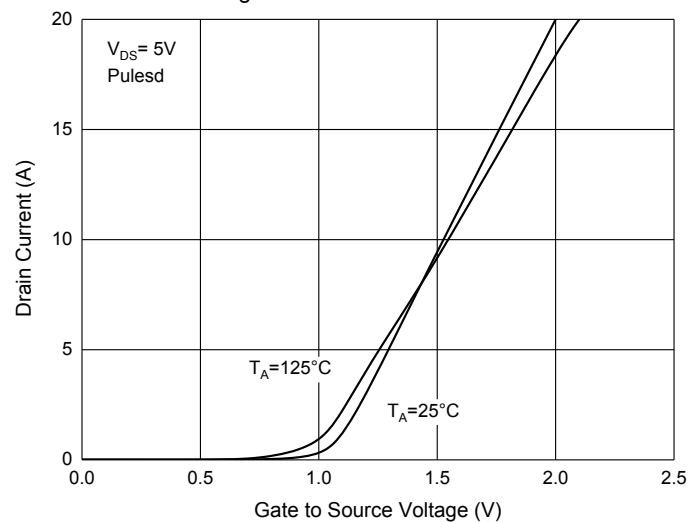


Fig. 3 - $R_{DS(ON)} - I_D$

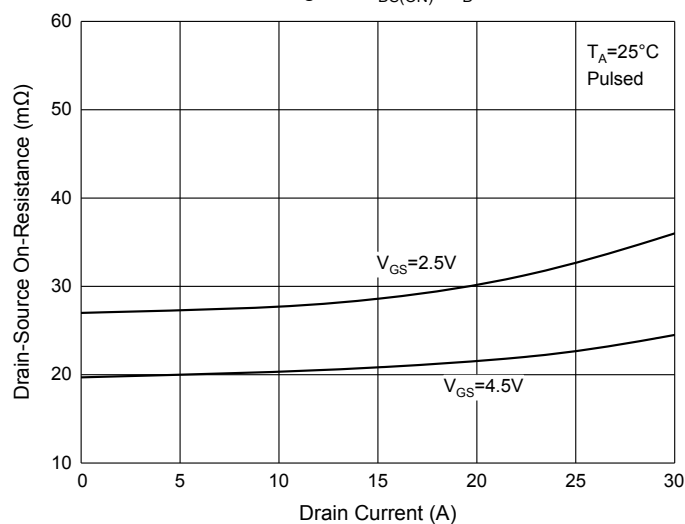
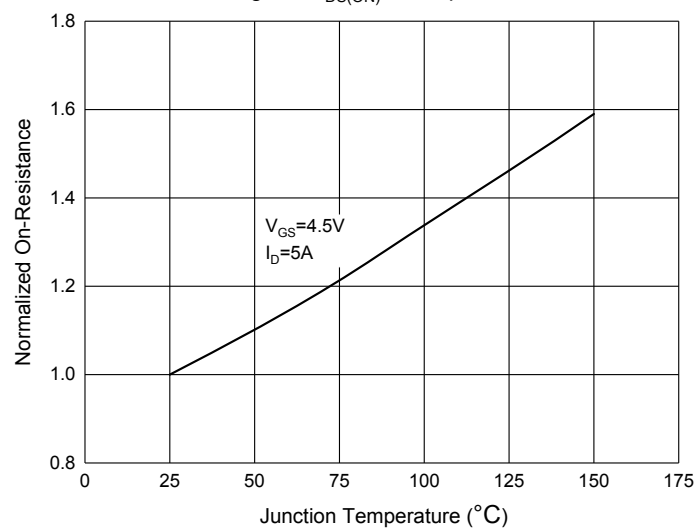


Fig. 4 - $R_{DS(ON)} - \text{Temperature}$



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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