

Features

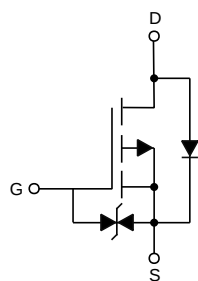
- Energy Efficient
- ESD Protected
- Low Threshold Voltage
- High Speed Switching
- Epoxy Meets UL 94 V-0 Flammability Rating
- Moisture Sensitivity Level 1
- Halogen Free Available Upon Request By Adding Suffix "-HF"
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

Maximum Ratings

- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Maximum Thermal Resistance: 556°C/W Junction to Ambient^(Note2)

Parameter	Symbol	Rating	Unit
Drain -source Voltage	V_{DS}	-60	V
Gate -Source Voltage	V_{GS}	±20	V
Drain Current-Continuous	I_D	-0.13	A
Plused Drain Current @ $t_p < 10\mu s$ ^(Note1)	I_{DM}	-0.52	A
Power Dissipation	P_D	0.225	W

Internal Structure

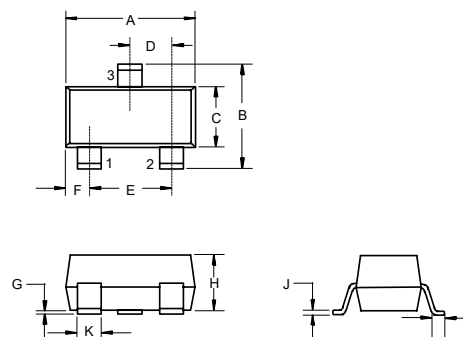


1. GATE
2. SOURCE
3. DRAIN

Marking: B84K

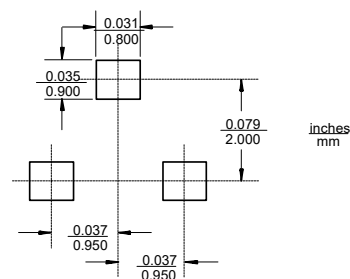
P-Channel MOSFET

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 (Ta=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-Threshold Voltage ^(Note 3)	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250μA	-0.8	-1.5	-2.5	V
Gate-Body Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V			±10	μA
Drain Leakage Current	I _{DSS}	V _{DS} =-48V, V _{GS} =0V			-1	μA
Drain-Source On-Resistance ^(Note 3)	R _{DS(on)}	V _{GS} =-10V, I _D =-0.5A		2.2	6.0	Ω
		V _{GS} =-4.5V, I _D =-0.2A		2.5	7.0	
Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =-0.5A			-1.3	V
Dynamic Characteristics ^(Note 4)						
Input Capacitance	C _{iss}	V _{DS} =-5V, V _{GS} =0V, f=1MHz		30		pF
Output Capacitance	C _{oss}			10		
Reverse Transfer Capacitance	C _{rss}			5		
Switching Characteristics ^(Note 4)						
Turn-On Delay Time	t _{d(on)}	V _{DD} =-15V, I _D =-2.5A, R _L =50Ω		2.5		ns
Turn-On Rise Time	t _r			1.0		
Turn-Off Delay Time	t _{d(off)}			16		
Turn-Off Fall Time	t _f			8.0		

Note:

1. Repetitive rating: Pulse width limited by junction temperature.
2. Surface mounted on FR4 board, $t \leq 10s$.
3. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.
4. Guaranteed by design, not subject to production.

Curve Characteristics

Fig. 1 - Output Characteristics

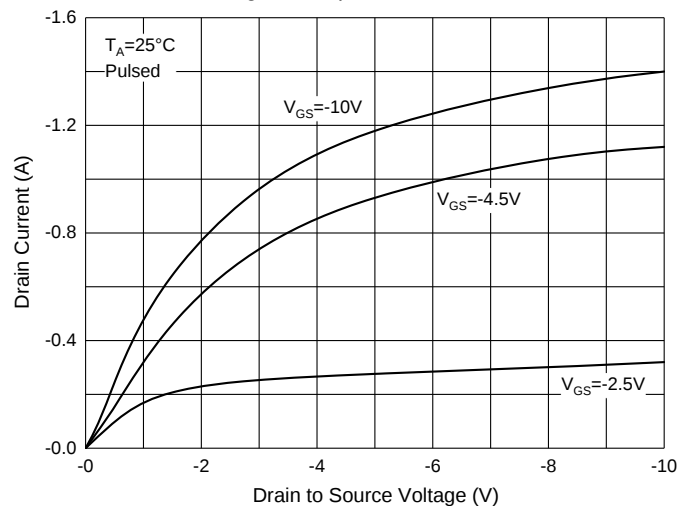


Fig. 2 - Transfer Characteristics

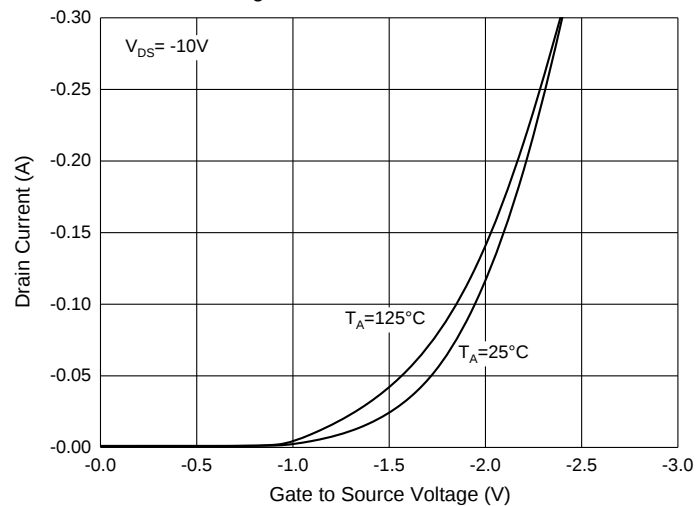


Fig. 3 - $R_{DS(ON)} - I_D$

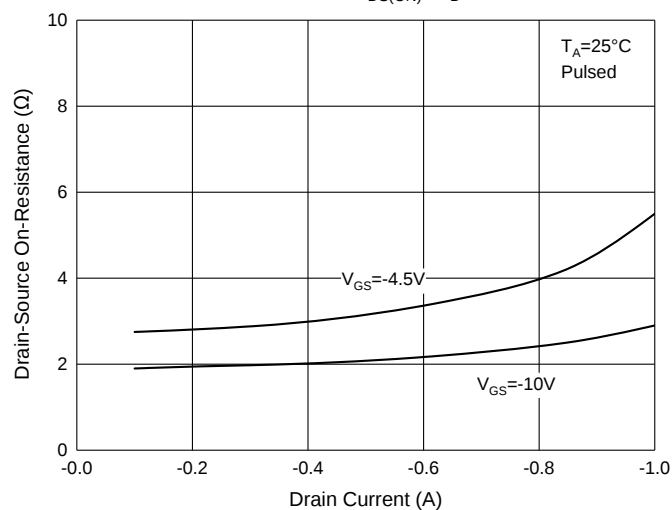


Fig. 4 - $R_{DS(ON)} - V_{GS}$

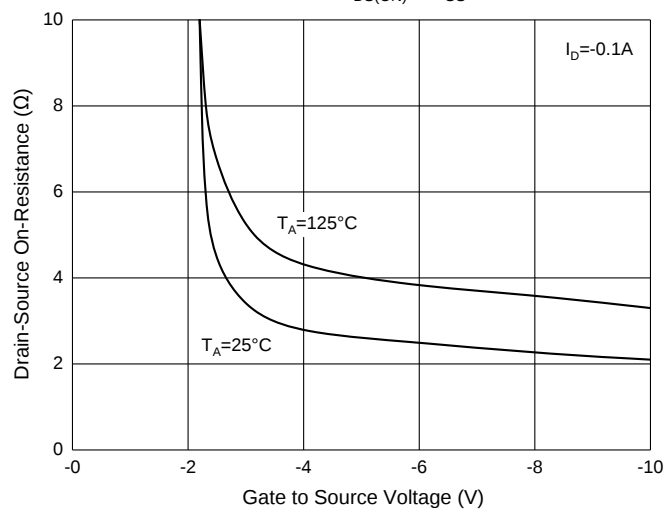


Fig. 5 - $I_S - V_{SD}$

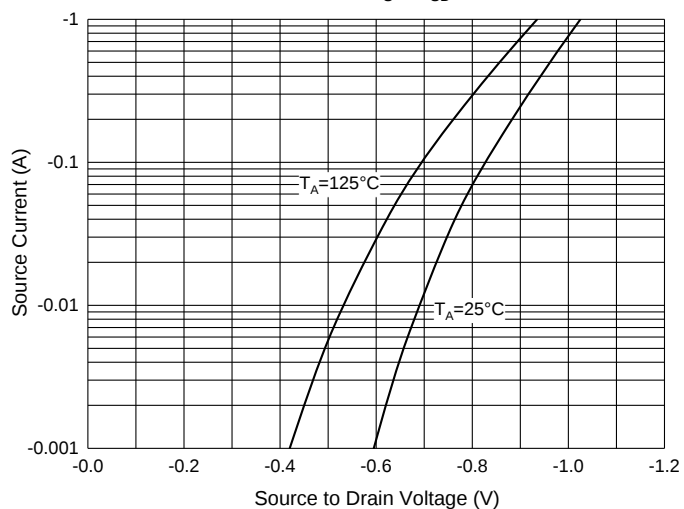
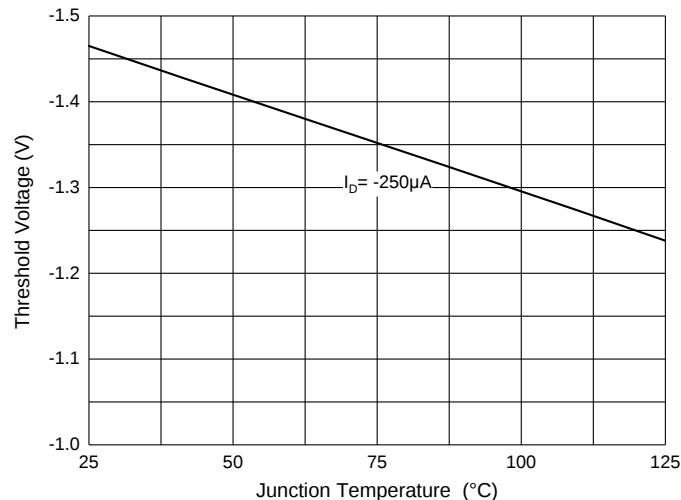


Fig. 6 - Threshold Voltage



Ordering Information

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

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

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