

MMBF1374T1

Preferred Device

Small Signal MOSFET 50 mAmps, 30 Volts N-Channel SC-70/SOT-323

These miniature surface mount MOSFETs low $R_{DS(on)}$ assure minimal power loss and conserve energy, making these devices ideal for use in small power management circuitry. Typical applications are dc-dc converters, power management in portable and battery-powered products such as computers, printers, PCMCIA cards, cellular and cordless telephones.

- Low $R_{DS(on)}$ Provides Higher Efficiency and Extends Battery Life
- Miniature SC-70/SOT-323 Surface Mount Package Saves Board Space

MAXIMUM RATINGS ($T_J = 25^\circ\text{C}$ unless otherwise noted)

Rating	Symbol	Value	Unit
Drain-to-Source Voltage	V_{DS}	20	Vdc
Gate-to-Source Voltage – Pulse	V_{GS}	± 20	Vdc
Drain Current – Continuous @ $T_A = 25^\circ\text{C}$	I_D	50	mA dc
Total Power Dissipation @ $T_A = 25^\circ\text{C}$ (Note 1.) Derate above 25°C	P_D	100	mW
Operating and Storage Temperature Range	T_J, T_{stg}	-55 to 150	$^\circ\text{C}$
Maximum Lead Temperature for Soldering Purposes, for 10 seconds	T_L	260	$^\circ\text{C}$

1. Mounted on G10/FR4 glass epoxy board using minimum recommended footprint.

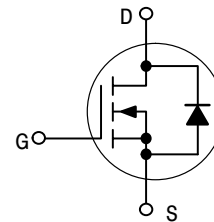


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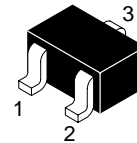
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50 mAmps
30 VOLTS
 $R_{DS(on)} = 50 \Omega$

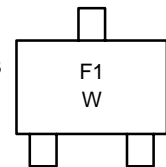
N-Channel



MARKING DIAGRAM

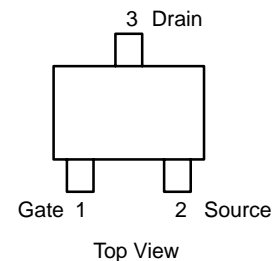


SC-70/SOT-323
CASE 419
STYLE 8



W = Work Week

PIN ASSIGNMENT



ORDERING INFORMATION

Device	Package	Shipping
MMBF1374T1	SC-70/ SOT-323	3000 Tape & Reel

Preferred devices are recommended choices for future use and best overall value.

MMBF1374T1

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
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OFF CHARACTERISTICS

Drain-to-Source Breakdown Voltage ($V_{GS} = 0\text{ Vdc}$, $I_D = 10\ \mu\text{A}$)	$V_{(BR)DSS}$	30	–	–	Vdc
Zero Gate Voltage Drain Current ($V_{DS} = 16\text{ Vdc}$, $V_{GS} = 0\text{ Vdc}$)	I_{DSS}	–	–	1.0	μAdc
Gate-Body Leakage Current ($V_{GS} = \pm 20\text{ Vdc}$, $V_{DS} = 0$)	I_{GSS}	–	–	1.0	μAdc

ON CHARACTERISTICS (Note 2.)

Gate Threshold Voltage ($V_{DS} = V_{GS}$, $I_D = 250\ \mu\text{Adc}$)	$V_{GS(th)}$	–	2	2.8	Vdc
Static Drain-to-Source On-Resistance ($V_{GS} = 4.5\text{ Vdc}$, $I_D = 10\text{ mAdc}$)	$r_{DS(on)}$	–	27	50	Ω
Forward Transconductance ($V_{DS} = 10\text{ Vdc}$, $I_D = 50\text{ mAdc}$)	g_{FS}	–	450	–	mMhos

DYNAMIC CHARACTERISTICS

Input Capacitance	($V_{DS} = 5.0\text{ V}$)	C_{iss}	–	45	–	pF
Output Capacitance	($V_{DS} = 5.0\text{ V}$)	C_{oss}	–	25	–	
Transfer Capacitance	($V_{DG} = 5.0\text{ V}$)	C_{rss}	–	5.0	–	

SWITCHING CHARACTERISTICS (Note 3.)

Turn-On Delay Time	$(V_{DD} = 15\text{ Vdc}$, $I_D = 50\text{ mAdc}$, $R_L = 50\ \Omega)$	$t_{d(on)}$	–	2.5	–	ns
Rise Time		t_r	–	2.5	–	
Turn-Off Delay Time		$t_{d(off)}$	–	15	–	
Fall Time		t_f	–	0.8	–	

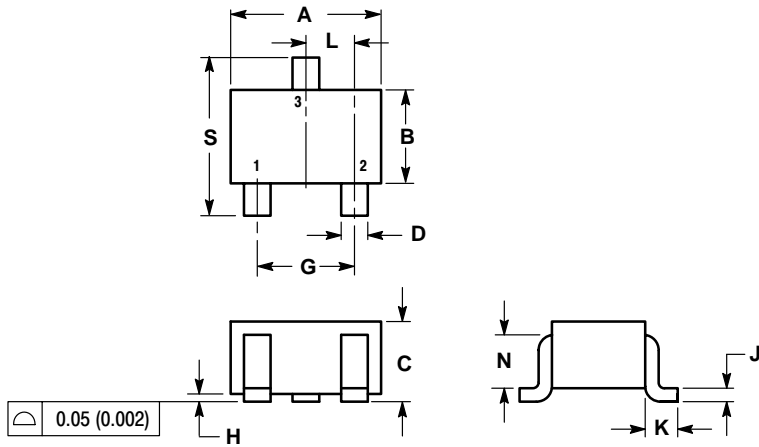
2. Pulse Test: Pulse Width $\leq 300\ \mu\text{s}$, Duty Cycle $\leq 2\%$.

3. Switching characteristics are independent of operating junction temperature.

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PACKAGE DIMENSIONS


SC-70/SOT-323
CASE 419-04
ISSUE L



- NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.071	0.087	1.80	2.20
B	0.045	0.053	1.15	1.35
C	0.032	0.040	0.80	1.00
D	0.012	0.016	0.30	0.40
G	0.047	0.055	1.20	1.40
H	0.000	0.004	0.00	0.10
J	0.004	0.010	0.10	0.25
K	0.017 REF		0.425 REF	
L	0.026 BSC		0.650 BSC	
N	0.028 REF		0.700 REF	
S	0.079	0.095	2.00	2.40

- STYLE 8:
PIN 1. Gate
2. Source
3. Drain

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