

# 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	$V_{GS}$	$\pm 20$	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 $25^\circ\text{C}$	$P_D$	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.

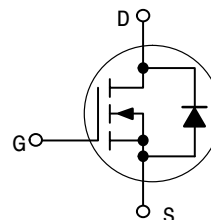


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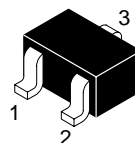
<http://onsemi.com>

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

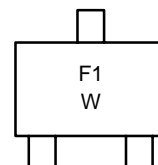
N-Channel



### MARKING DIAGRAM

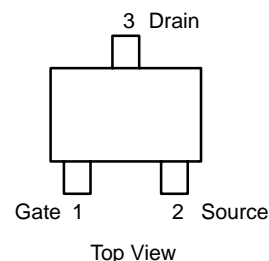


SC-70/SOT-323  
CASE 419  
STYLE 8



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.

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

### ON CHARACTERISTICS (Note 2.)

Gate Threshold Voltage ( $V_{DS} = V_{GS}$ , $I_D = 250\text{ }\mu\text{Adc}$ )	$V_{GS(th)}$	–	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	$\Omega$
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 <sub>DD</sub> = 15 Vdc, I <sub>D</sub> = 50 mAdc, R <sub>L</sub> = 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	–	

- Pulse Test: Pulse Width  $\leq 300\text{ }\mu\text{s}$ , Duty Cycle  $\leq 2\%$ .
- Switching characteristics are independent of operating junction temperature.

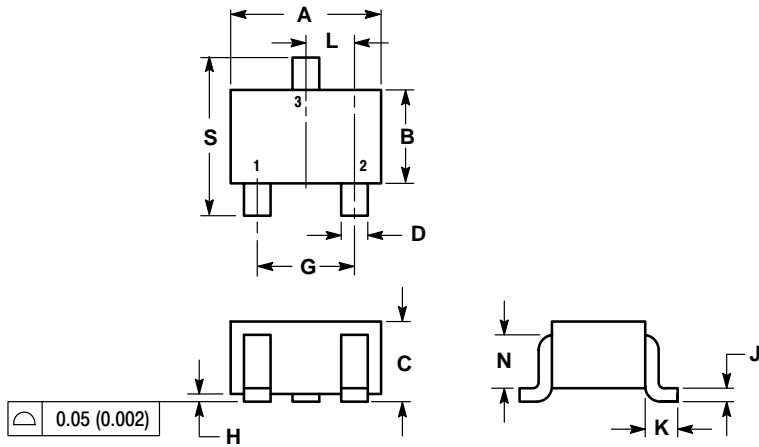
# MMBF1374T1

## 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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