

# MSB1218A-RT1

Preferred Device

## PNP Silicon General Purpose Amplifier Transistor

This PNP Silicon Epitaxial Planar Transistor is designed for general purpose amplifier applications. This device is housed in the SC-70/SOT-323 package which is designed for low power surface mount applications.

### Features

- High  $h_{FE}$ , 210–460
- Low  $V_{CE(sat)}$ , < 0.5 V
- Pb-Free Package is Available

### MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ )

Rating	Symbol	Value	Unit
Collector–Base Voltage	$V_{(BR)CBO}$	45	Vdc
Collector–Emitter Voltage	$V_{(BR)CEO}$	45	Vdc
Emitter–Base Voltage	$V_{(BR)EBO}$	7.0	Vdc
Collector Current – Continuous	$I_C$	100	mAdc
Collector Current – Peak	$I_{C(P)}$	200	mAdc

### THERMAL CHARACTERISTICS

Rating	Symbol	Max	Unit
Power Dissipation (Note 1)	$P_D$	150	mW
Junction Temperature	$T_J$	150	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	–55 to +150	$^\circ\text{C}$

### ELECTRICAL CHARACTERISTICS

Characteristic	Symbol	Min	Max	Unit
Collector–Emitter Breakdown Voltage ( $I_C = 2.0 \text{ mAdc}$ , $I_B = 0$ )	$V_{(BR)CEO}$	45	–	Vdc
Collector–Base Breakdown Voltage ( $I_C = 10 \mu\text{Adc}$ , $I_E = 0$ )	$V_{(BR)CBO}$	45	–	Vdc
Emitter–Base Breakdown Voltage ( $I_E = 10 \mu\text{Adc}$ , $I_C = 0$ )	$V_{(BR)EBO}$	7.0	–	Vdc
Collector–Base Cutoff Current ( $V_{CB} = 20 \text{ Vdc}$ , $I_E = 0$ )	$I_{CBO}$	–	0.1	$\mu\text{A}$
Collector–Emitter Cutoff Current ( $V_{CE} = 10 \text{ Vdc}$ , $I_B = 0$ )	$I_{CEO}$	–	100	$\mu\text{A}$
DC Current Gain (Note 2) ( $V_{CE} = 10 \text{ Vdc}$ , $I_C = 2.0 \text{ mAdc}$ )	$h_{FE1}$	210	340	–
Collector–Emitter Saturation Voltage (Note 2) ( $I_C = 100 \text{ mAdc}$ , $I_B = 10 \text{ mAdc}$ )	$V_{CE(sat)}$	–	0.5	Vdc

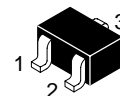
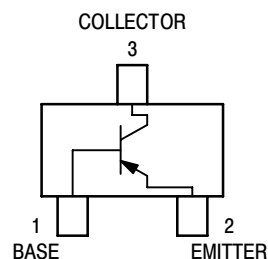
Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

1. Device mounted on a FR-4 glass epoxy printed circuit board using the minimum recommended footprint.
2. Pulse Test: Pulse Width  $\leq 300 \mu\text{s}$ , D.C.  $\leq 2\%$ .



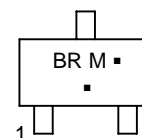
ON Semiconductor®

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SC-70 (SOT-323)  
CASE 419  
STYLE 4

### MARKING DIAGRAM



BR = Device Code  
M = Date Code\*  
▪ = Pb-Free Package

(Note: Microdot may be in either location)  
\*Date Code orientation may vary depending upon manufacturing location.

### ORDERING INFORMATION

Device	Package	Shipping†
MSB1218A-RT1	SC-70	3000 /Tape & Reel
MSB1218A-RT1G	SC-70 (Pb-Free)	3000 /Tape & Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

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

# MSB1218A-RT1

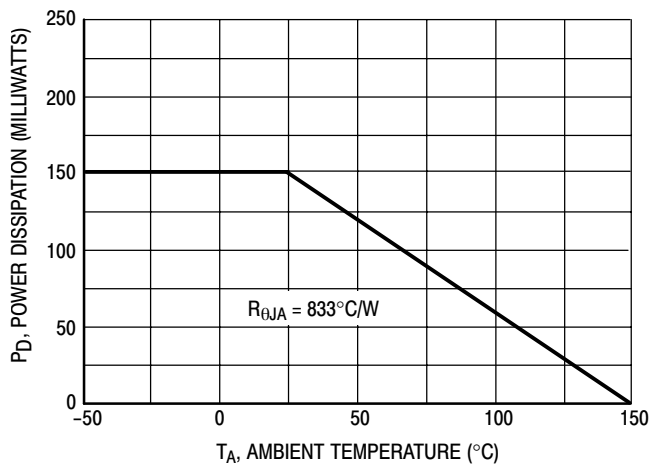


Figure 1. Derating Curve

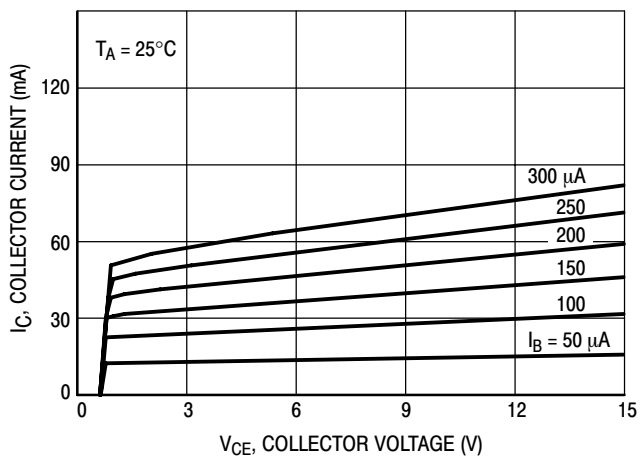


Figure 2. I<sub>C</sub> - V<sub>CE</sub>

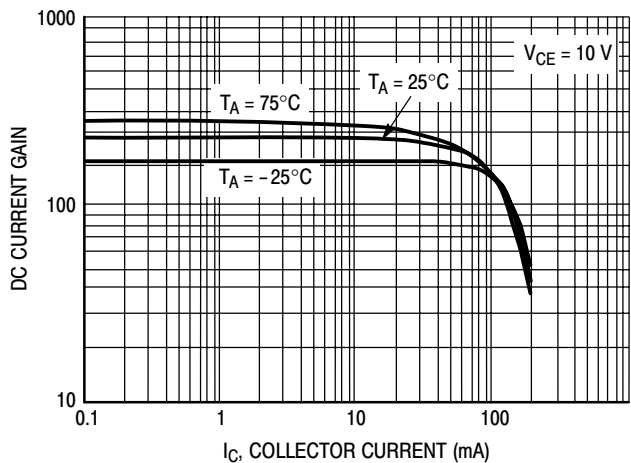


Figure 3. DC Current Gain

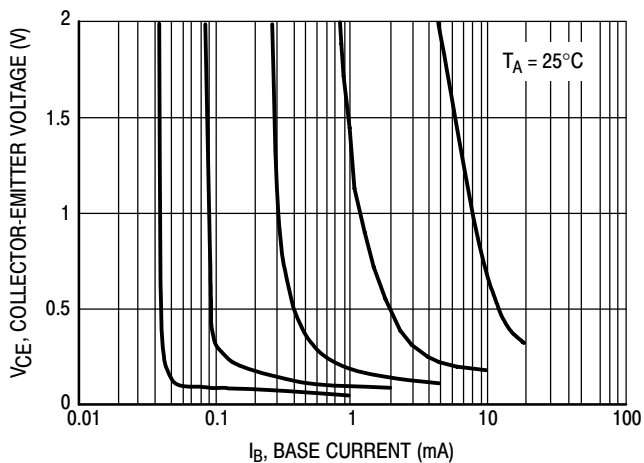


Figure 4. Collector Saturation Region

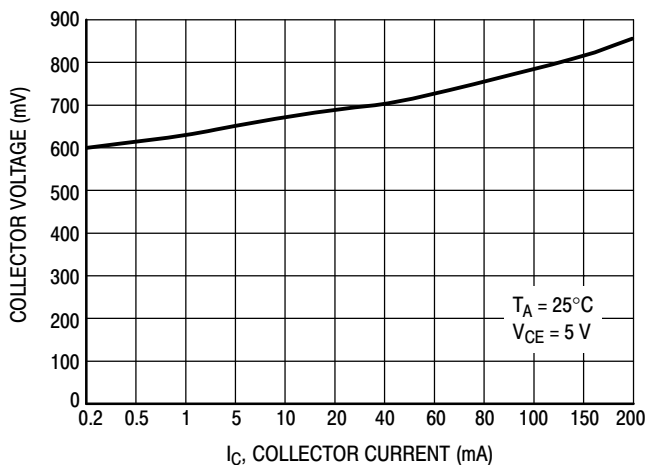


Figure 5. On Voltage

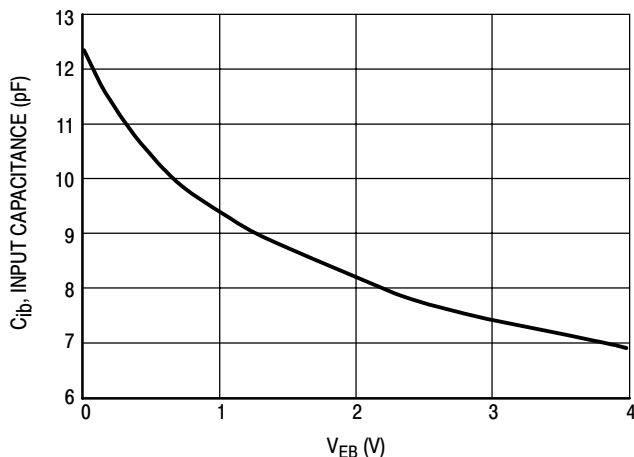


Figure 6. Capacitance

# MSB1218A-RT1

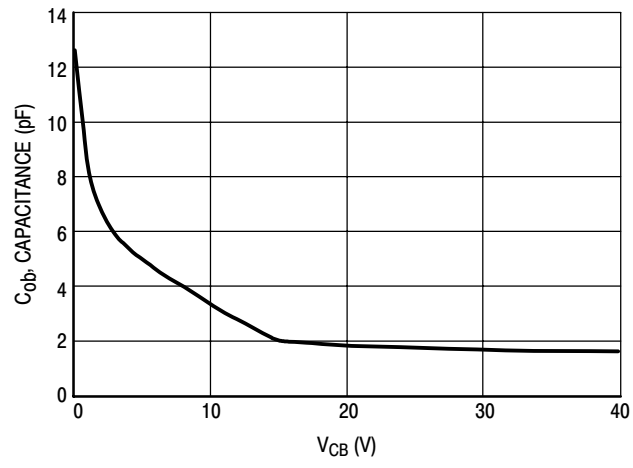
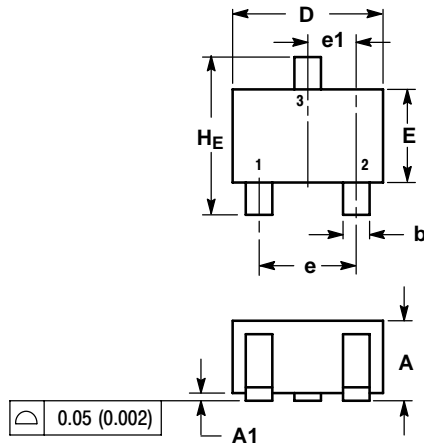


Figure 7. Capacitance

# MSB1218A-RT1

## PACKAGE DIMENSIONS

SC-70 (SOT-323)  
CASE 419-04  
ISSUE M

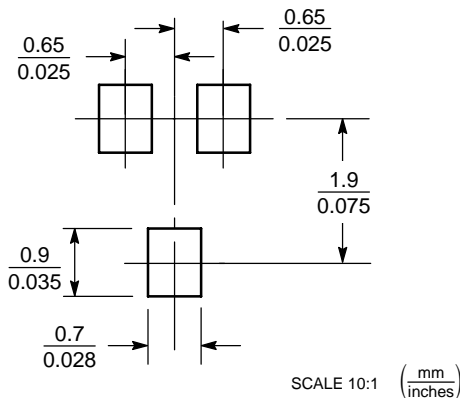


- NOTES:  
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.  
2. CONTROLLING DIMENSION: INCH.

DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.80	0.90	1.00	0.032	0.035	0.040
A1	0.00	0.05	0.10	0.000	0.002	0.004
A2	0.7 REF			0.028 REF		
b	0.30	0.35	0.40	0.012	0.014	0.016
c	0.10	0.18	0.25	0.004	0.007	0.010
D	1.80	2.10	2.20	0.071	0.083	0.087
E	1.15	1.24	1.35	0.045	0.049	0.053
e	1.20	1.30	1.40	0.047	0.051	0.055
e1	0.65 BSC			0.026 BSC		
L	0.425 REF			0.017 REF		
HE	2.00	2.10	2.40	0.079	0.083	0.095

STYLE 4:  
PIN 1: CATHODE  
2: CATHODE  
3: ANODE

### SOLDERING FOOTPRINT\*



\*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

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