

# Bipolar Transistor

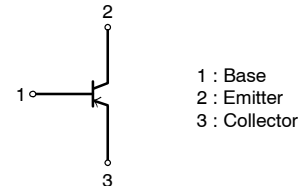
**15 V, 0.7 A, Low  $V_{CE(sat)}$   
 NPN Single MCP**

**15C01M**



SC-70-3  
 CASE 419AJ

## ELECTRICAL CONNECTION



### Features

- Large Current Capacity
- Low Collector-to-Emitter Saturation Voltage (resistance)  $R_{CE(sat)}$   
 typ.=0.58  $\Omega$  [ $I_C = 0.7$  A,  $I_B = 35$  mA]
- Ultrasmall Package Facilitates Miniaturization in end products
- Small ON-resistance ( $R_{on}$ )
- These Devices are Pb-Free and Halide Free

### Applications

- Low-frequency Amplifier, muting circuit

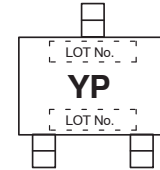
### Specifications

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

Symbol	Parameter	Conditions	Ratings	Unit
$V_{CBO}$	Collector-to-Base Voltage		20	V
$V_{CEO}$	Collector-to-Emitter Voltage		15	V
$V_{EBO}$	Emitter-to-Base Voltage		5	V
$I_C$	Collector Current		700	mA
$I_{CP}$	Collector Current (Pulse)		1.4	A
$P_C$	Collector Dissipation	Mounted on glass epoxy board (20 x 30 x 1.6 mm)	300	mW
$T_j$	Junction Temperature		150	$^\circ\text{C}$
$T_{stg}$	Storage Temperature		-55 to +150	$^\circ\text{C}$

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

## MARKING DIAGRAM



## ORDERING INFORMATION

Device	Package	Shipping <sup>†</sup>
15C01M-TL-E	SC-70 MCP3 (Pb-Free)	3000 / Tape & Reel

<sup>†</sup>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](#).

# 15C01M

## ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ )

Symbol	Parameter	Conditions	Ratings			Unit
			Min	Typ	Max	
$I_{CBO}$	Collector Cutoff Current	$V_{CB} = 15\text{ V}, I_E = 0\text{ A}$	–	–	0.1	$\mu\text{A}$
$I_{EBO}$	Emitter Cutoff Current	$V_{EB} = 4\text{ V}, I_C = 0\text{ A}$	–	–	0.1	$\mu\text{A}$
$h_{FE}$	DC Current Gain	$V_{CE} = 2\text{ V}, I_C = 10\text{ mA}$	300	–	800	–
$f_T$	Gain–Bandwidth Product	$V_{CE} = 2\text{ V}, I_C = 50\text{ mA}$	–	330	–	MHz
Cob	Output Capacitance	$V_{CB} = 10\text{ V}, f = 1\text{ MHz}$	–	3.2	–	pF
$V_{CE(sat)}$	Collector–to–Emitter Saturation Voltage	$I_C = 200\text{ mA}, I_B = 10\text{ mA}$	–	150	300	mV
$V_{BE(sat)}$	Base–to–Emitter Saturation Voltage	$I_C = 200\text{ mA}, I_B = 10\text{ mA}$	–	0.9	1.2	V
$V_{(BR)CBO}$	Collector–to–Base Breakdown Voltage	$I_C = 10\text{ }\mu\text{A}, I_E = 0\text{ A}$	20	–	–	V
$V_{(BR)CEO}$	Collector–to–Emitter Breakdown Voltage	$I_C = 1\text{ mA}, R_{BE} = \infty$	15	–	–	V
$V_{(BR)EBO}$	Emitter–to–Base Breakdown Voltage	$I_E = 10\text{ }\mu\text{A}, I_C = 0\text{ A}$	5	–	–	V
$t_{on}$	Turn–On Time	See specified Test Circuit.	–	30	–	ns
$t_{stg}$	Storage Time		–	77	–	ns
$t_f$	Fall Time		–	40	–	ns

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

TYPICAL CHARACTERISTICS

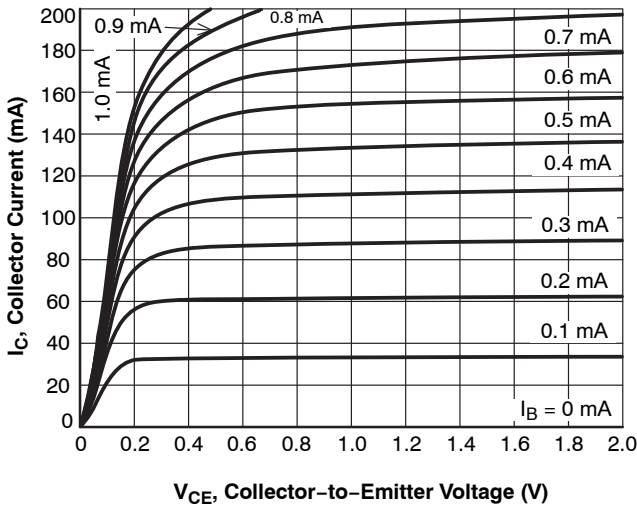


Figure 1.  $I_C - V_{CE}$

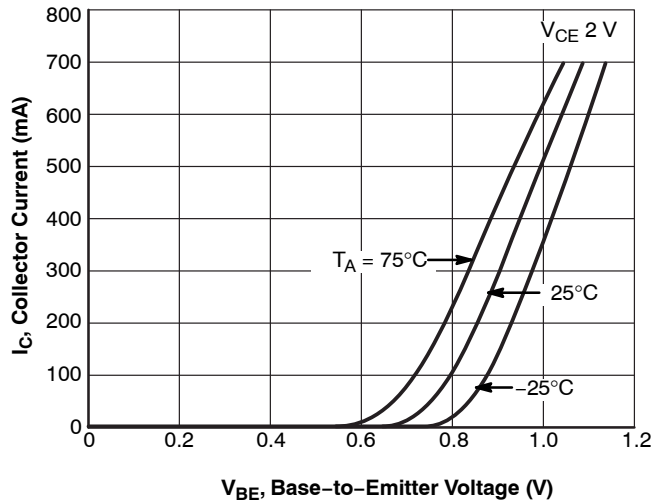


Figure 2.  $I_C - V_{BE}$

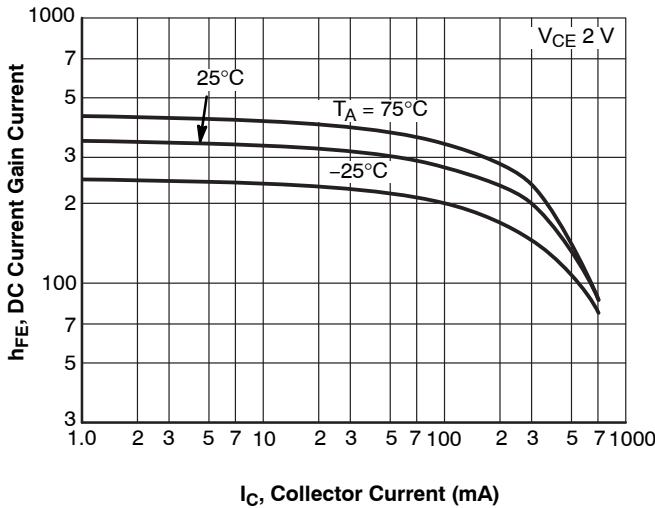


Figure 3.  $h_{FE} - I_C$

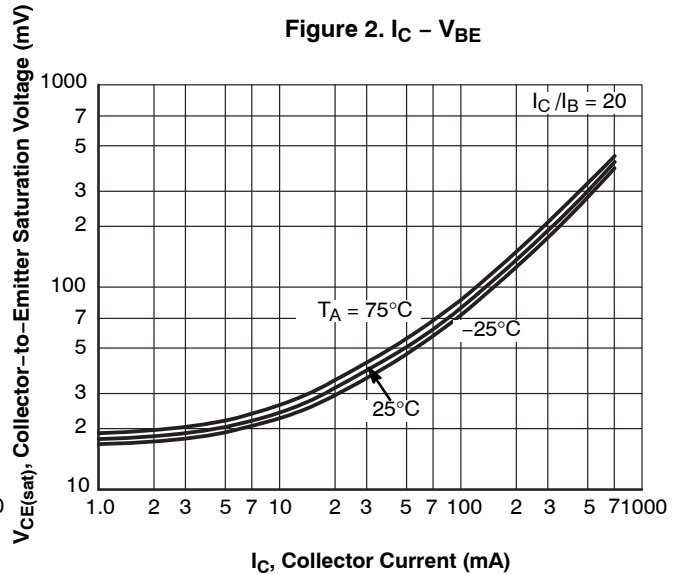


Figure 4.  $I_C - V_{CE(sat)}$

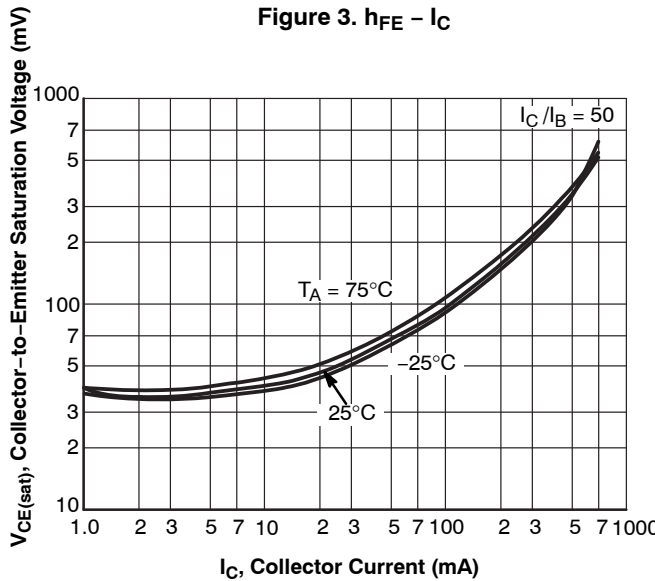


Figure 5.  $V_{CE(sat)} - I_C$

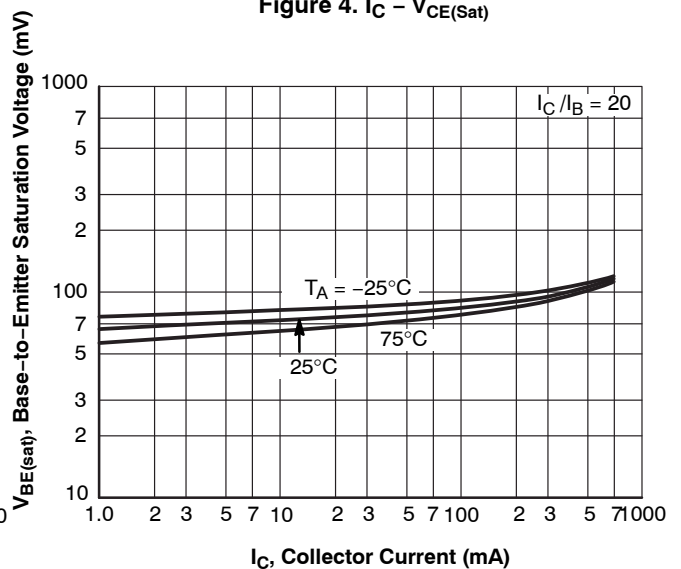


Figure 6.  $V_{BE(sat)} - I_C$

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## TYPICAL CHARACTERISTICS (CONTINUED)

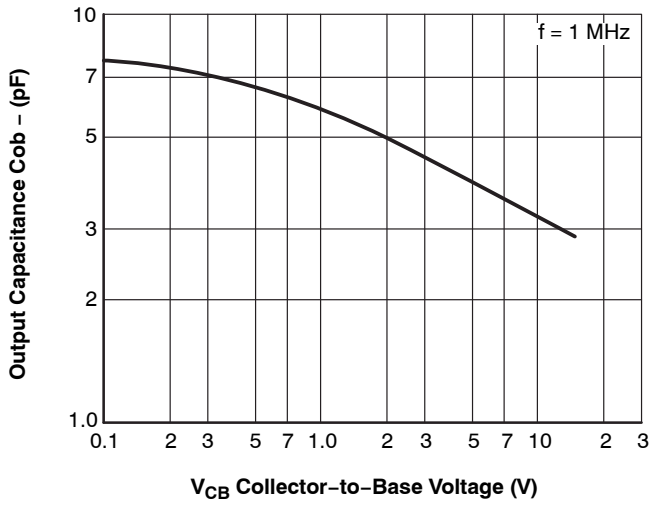


Figure 7.  $C_{ob}$  -  $V_{CB}$

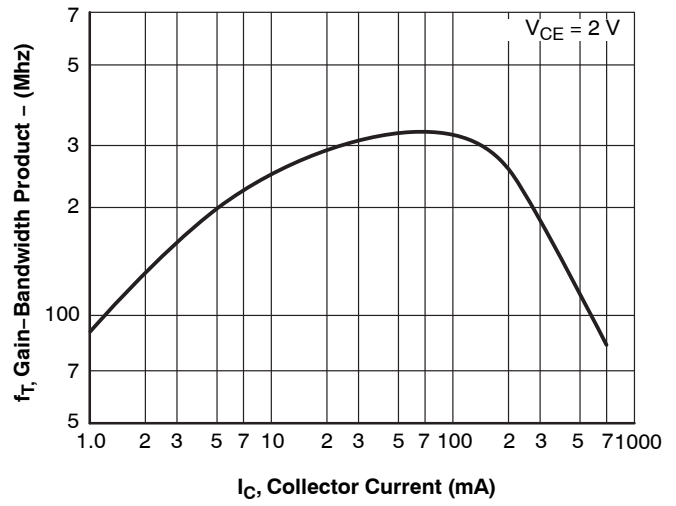


Figure 8.  $f_T$  -  $I_C$

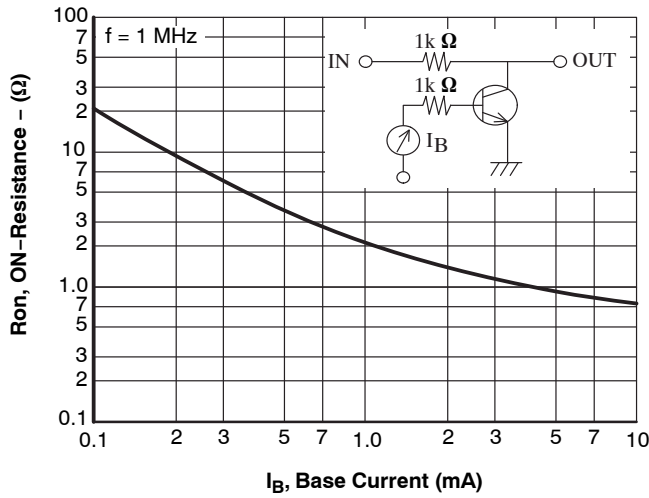


Figure 9.  $R_{on}$  -  $I_B$

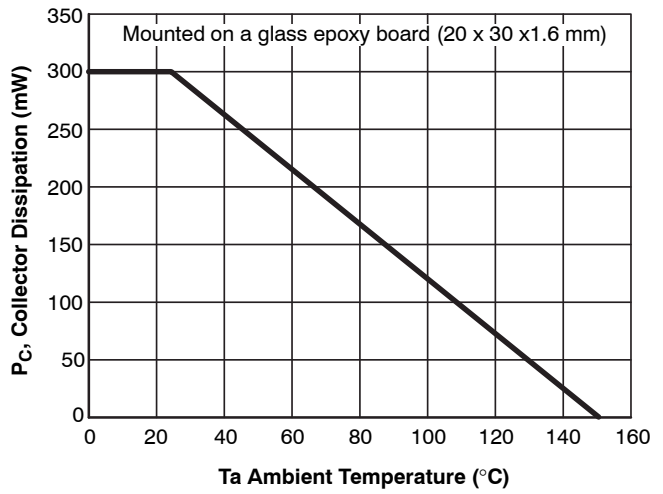
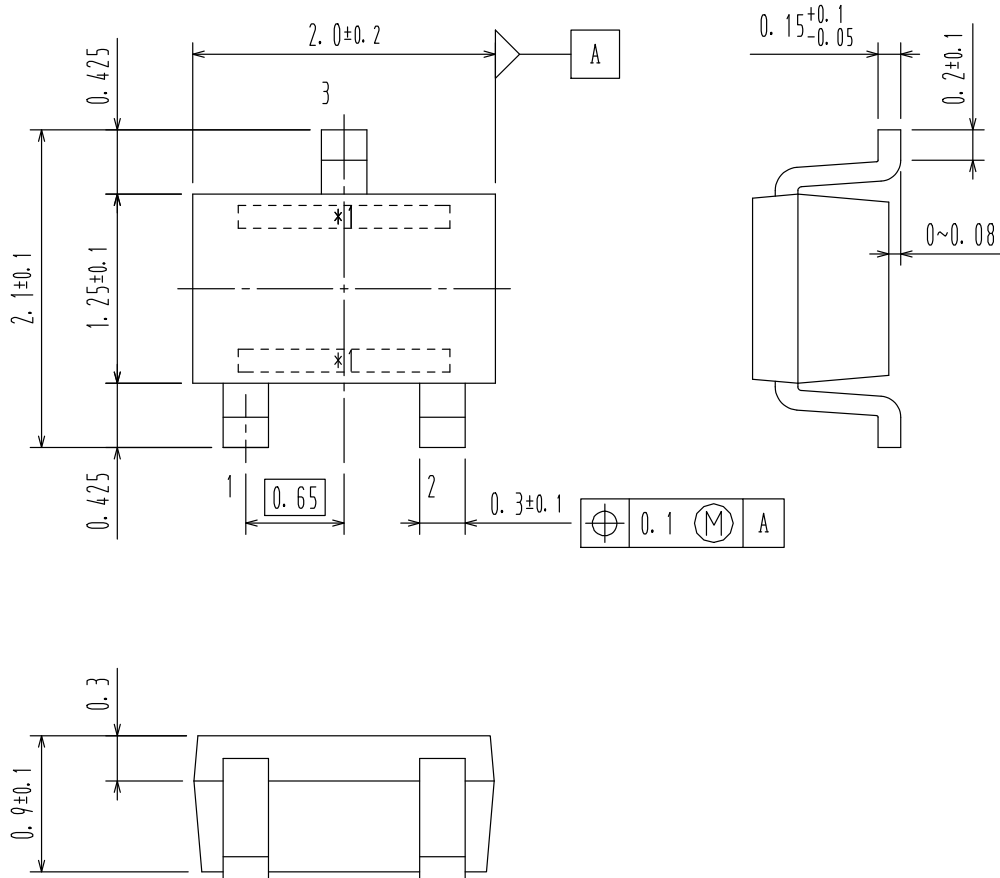


Figure 10.  $P_C$  -  $T_a$

**MECHANICAL CASE OUTLINE**  
**PACKAGE DIMENSIONS**

**SC-70 / MCP3**  
**CASE 419AJ**  
**ISSUE O**

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