

Bipolar Transistor

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

15C01M

Features

- Large Current Capacity
- Low Collector-to-Emitter Saturation Voltage (resistance) $R_{CE(sat)}$
 typ.=0.58 Ω [$I_C = 0.7$ 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 ($T_A = 25^\circ\text{C}$)

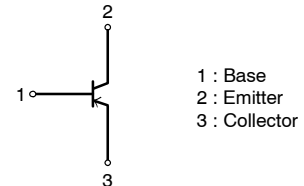
Symbol	Parameter	Conditions	Ratings	Unit
V_{CBO}	Collector-to-Base Voltage		20	V
V_{CEO}	Collector-to-Emitter Voltage		15	V
V_{EBO}	Emitter-to-Base Voltage		5	V
I_C	Collector Current		700	mA
I_{CP}	Collector Current (Pulse)		1.4	A
P_C	Collector Dissipation	Mounted on glass epoxy board (20 x 30 x 1.6 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.

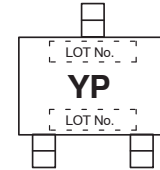


SC-70-3
 CASE 419AJ

ELECTRICAL CONNECTION



MARKING DIAGRAM



ORDERING INFORMATION

Device	Package	Shipping [†]
15C01M-TL-E	SC-70 MCP3 (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](#).

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	μA
I_{EBO}	Emitter Cutoff Current	$V_{EB} = 4\text{ V}, I_C = 0\text{ A}$	–	–	0.1	μA
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

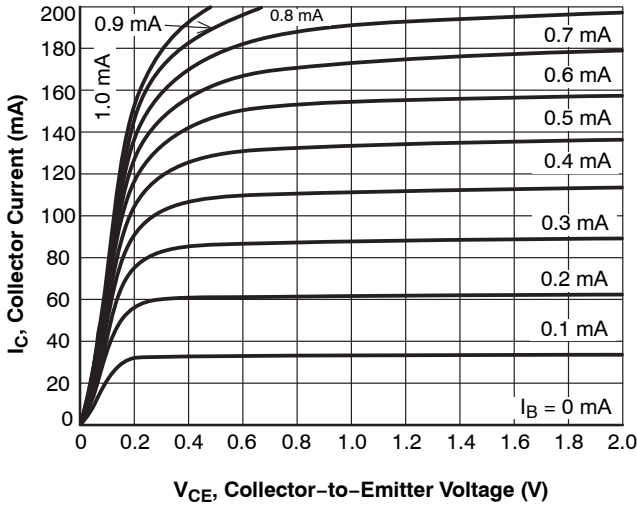


Figure 1. $I_C - V_{CE}$

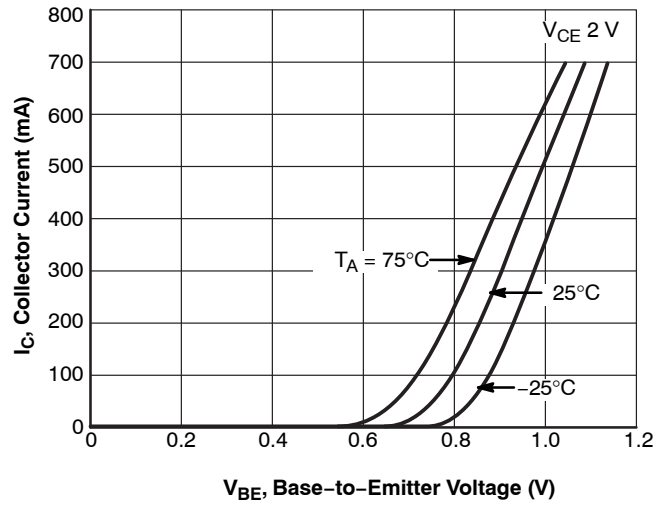


Figure 2. $I_C - V_{BE}$

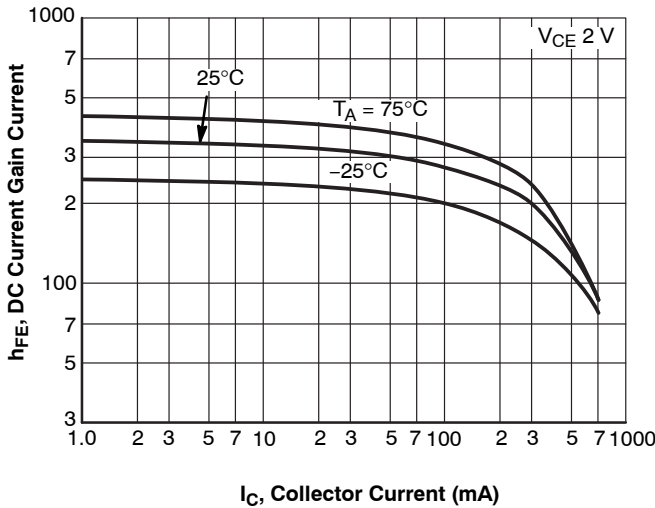


Figure 3. $h_{FE} - I_C$

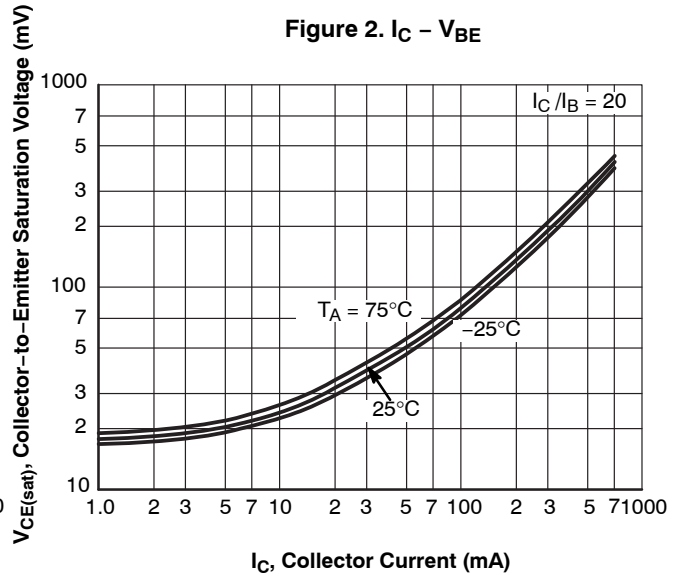


Figure 4. $I_C - V_{CE(sat)}$

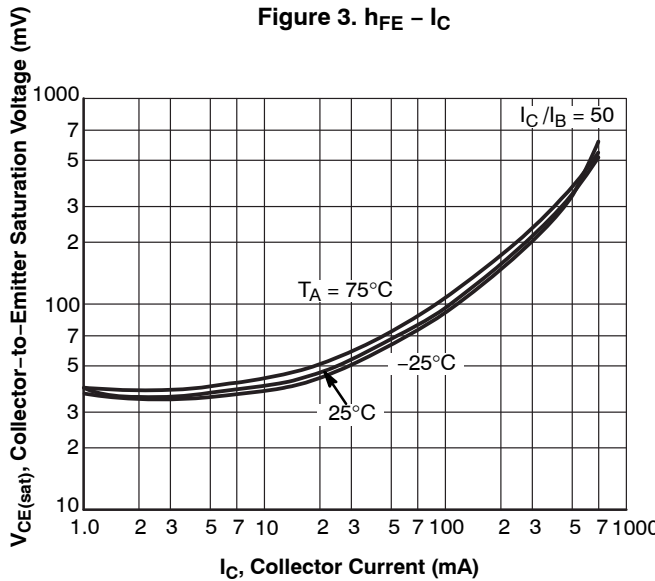


Figure 5. $V_{CE(sat)} - I_C$

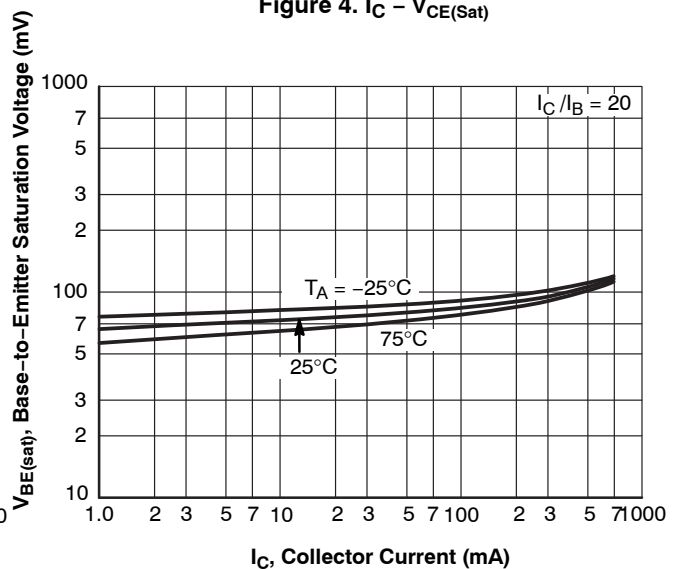


Figure 6. $V_{BE(sat)} - I_C$

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TYPICAL CHARACTERISTICS (CONTINUED)

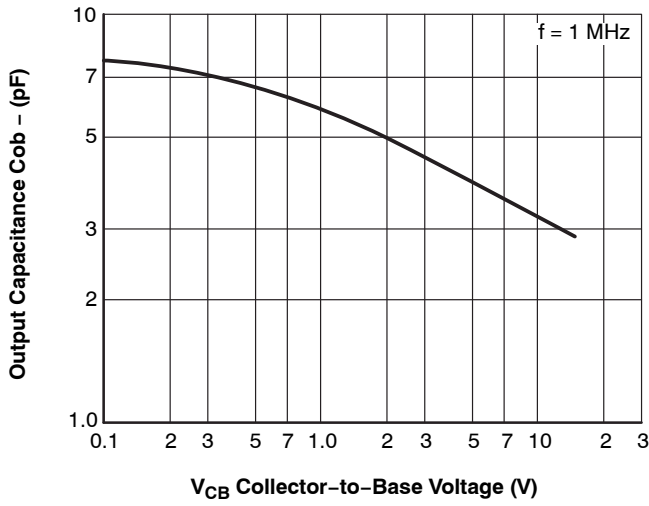


Figure 7. $C_{ob} - V_{CB}$

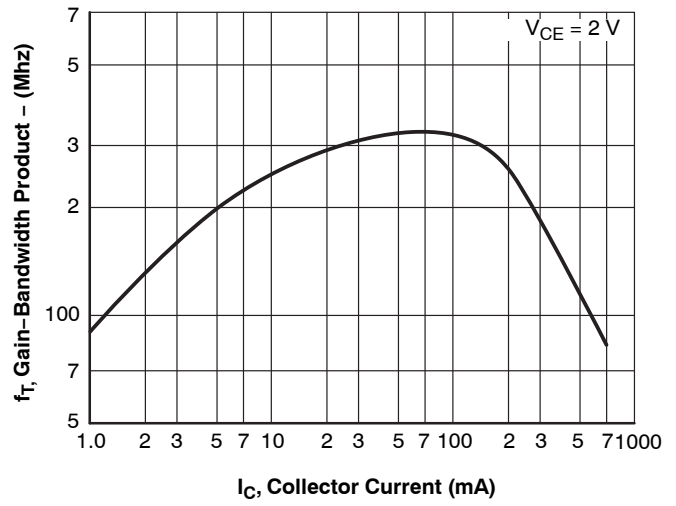


Figure 8. $f_T - I_C$

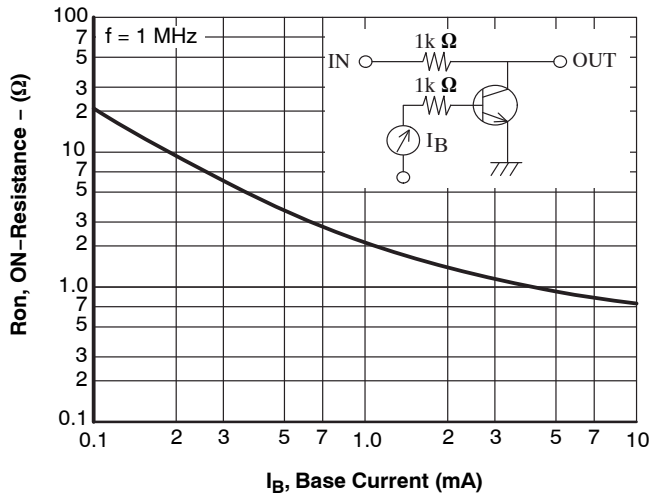


Figure 9. $R_{on} - I_B$

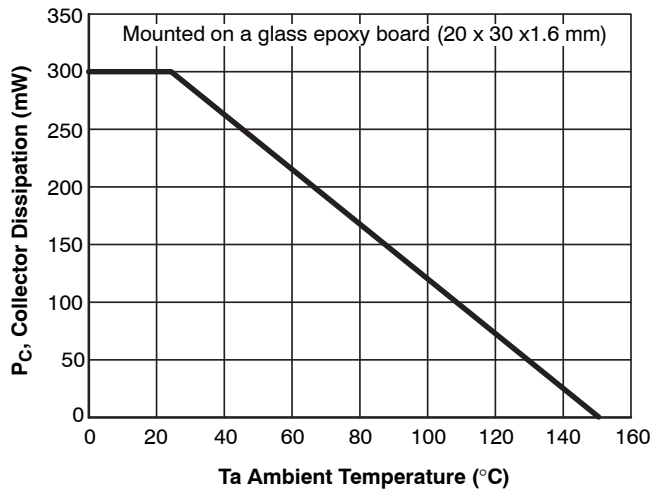
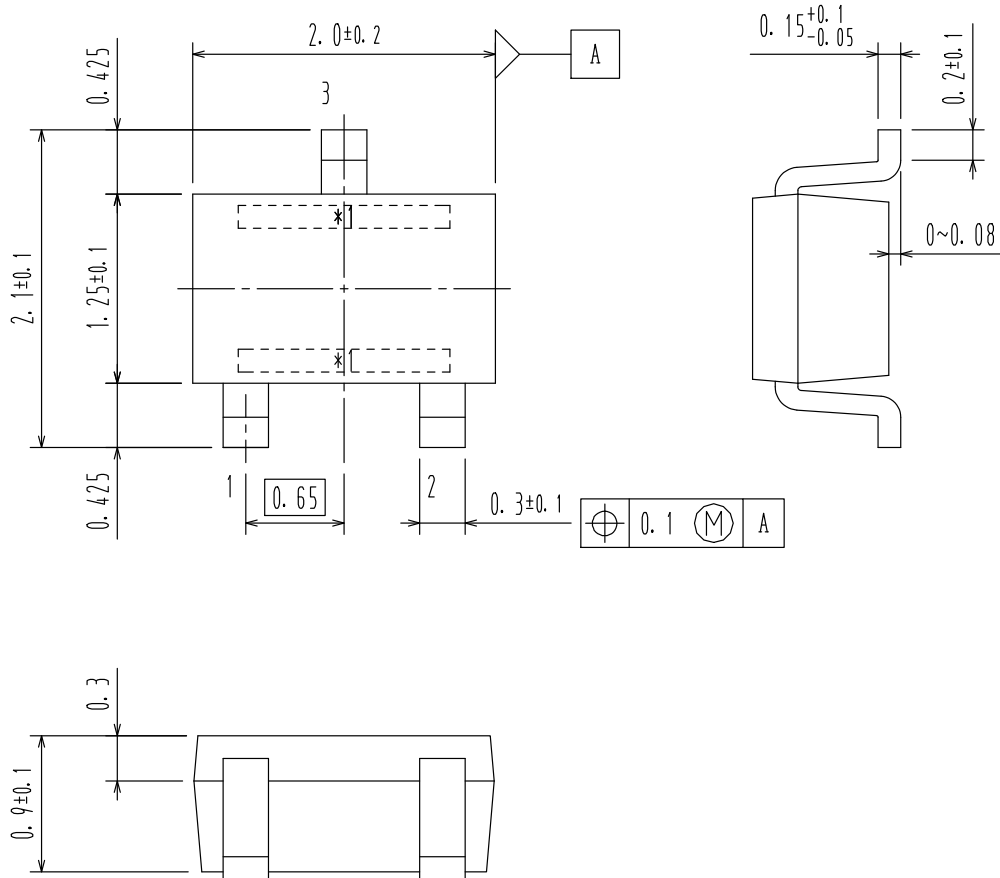


Figure 10. $P_C - T_a$

MECHANICAL CASE OUTLINE
PACKAGE DIMENSIONS

SC-70 / MCP3
CASE 419AJ
ISSUE O

DATE 30 NOV 2011



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