Bipolar Transistor

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

15C01M

SC−70−3
CASE 419AJ

Features

- Large Current Capacity
- Low Collector−to−Emitter Saturation Voltage (resistance) RCE (sat) typ.=0.58 Ω [I_C = 0.7 A, I_B = 35 mA]
- Ultrasmall Package Facilitates Miniaturization in end products
- Small ON−resistance (Ron)
- These Devices are Pb−Free and Halide Free

Applications

- Low−frequency Amplifier, muting circuit

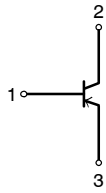
Specifications

ABSOLUTE MAXIMUM RATINGS (T_A = 25°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
Tj	Junction Temperature		150	°C
Tstg	Storage Temperature		−55 to +150	°C

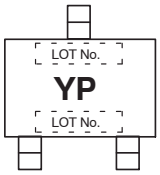
Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

ELECTRICAL CONNECTION



1 : Base
2 : Emitter
3 : Collector

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.

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ELECTRICAL CHARACTERISTICS (T_A = 25°C)

Symbol	Parameter	Conditions	Ratings			Unit
			Min	Typ	Max	
I_{CBO}	Collector Cutoff Current	V_{CB} = 15 V, I_E = 0 A	–	–	0.1	μA
I_{EBO}	Emitter Cutoff Current	V_{EB} = 4 V I_C = 0 A	–	–	0.1	μA
h_{FE}	DC Current Gain	V_{CE} = 2 V, I_C = 10 mA	300	–	800	–
f_T	Gain−Bandwidth Product	V_{CE} = 2 V, I_C = 50 mA	–	330	–	MHz
Cob	Output Capacitance	V_{CB} = 10 V, f = 1 MHz	–	3.2	–	pF
V_{CE}(sat)	Collector−to−Emitter Saturation Voltage	I_C = 200 mA, I_B = 10 mA	–	150	300	mV
V_{BE}(sat)	Base−to−Emitter Saturation Voltage	I_C = 200 mA, I_B = 10 mA	–	0.9	1.2	V
$V_{(BR)CBO}$	Collector−to−Base Breakdown Voltage	I_C = 10 μA, I_E = 0 A	20	–	–	V
$V_{(BR)CEO}$	Collector−to−Emitter Breakdown Voltage	I_C = 1 mA, R_{BE} = ∞	15	–	–	V
$V_{(BR)EBO}$	Emitter−to−Base Breakdown Voltage	I_E = 10 μA, I_C = 0 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.

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TYPICAL CHARACTERISTICS

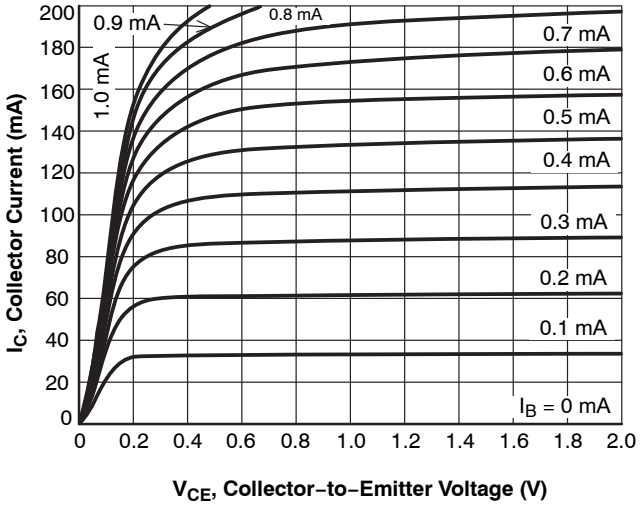

Figure 1. $I_C - V_{CE}$

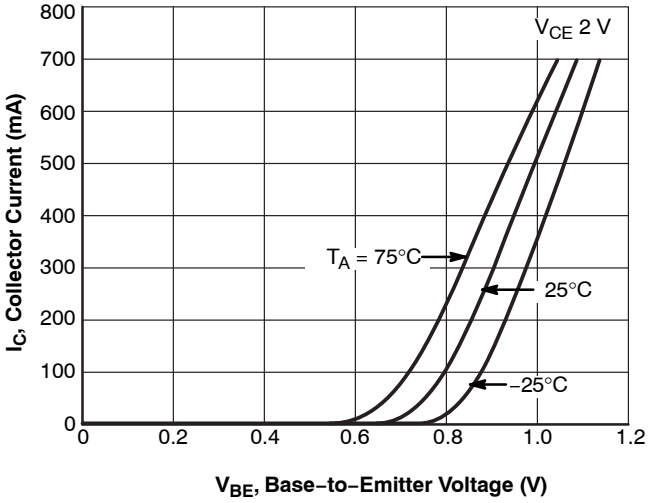

Figure 2. $I_C - V_{BE}$

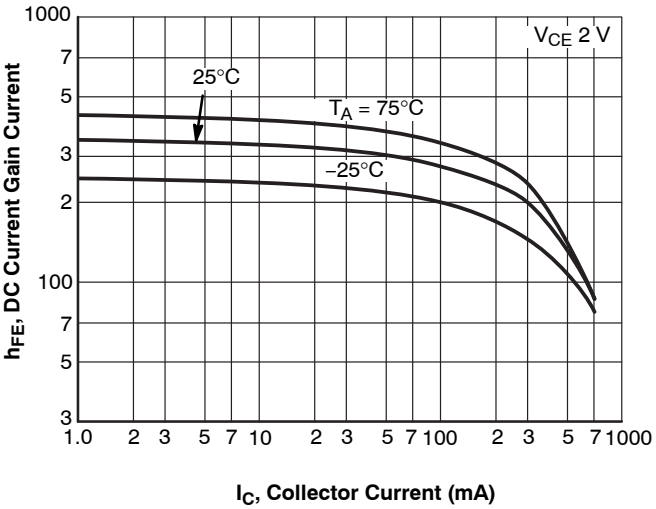

Figure 3. $h_{FE} - I_C$

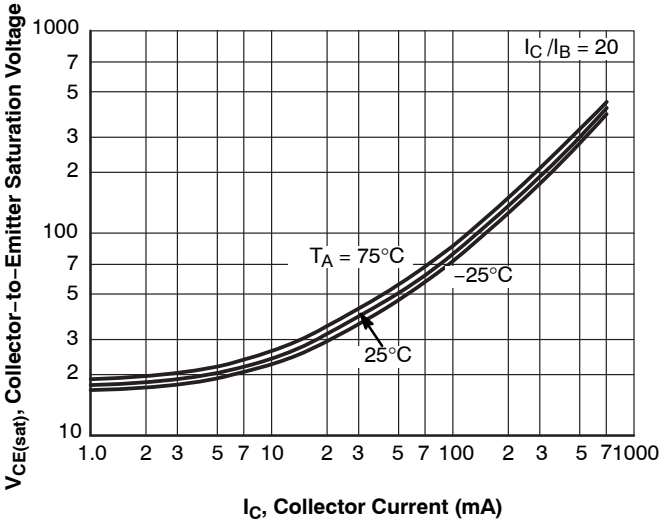

Figure 4. $I_C - V_{CE(Sat)}$

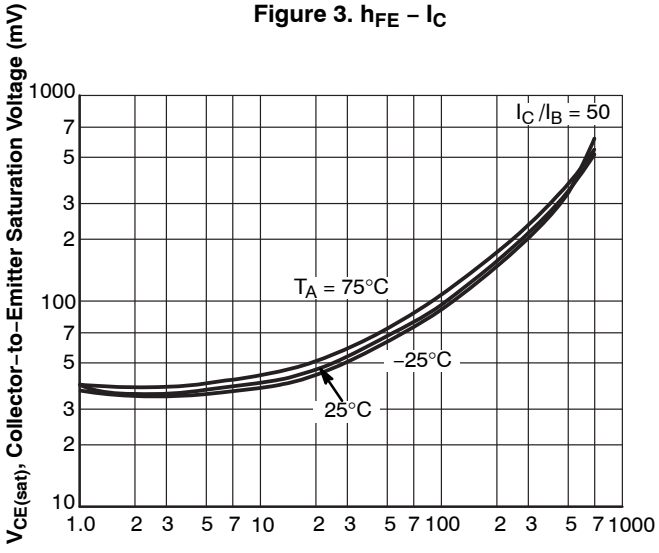

Figure 5. $V_{CE(Sat)} - I_C$

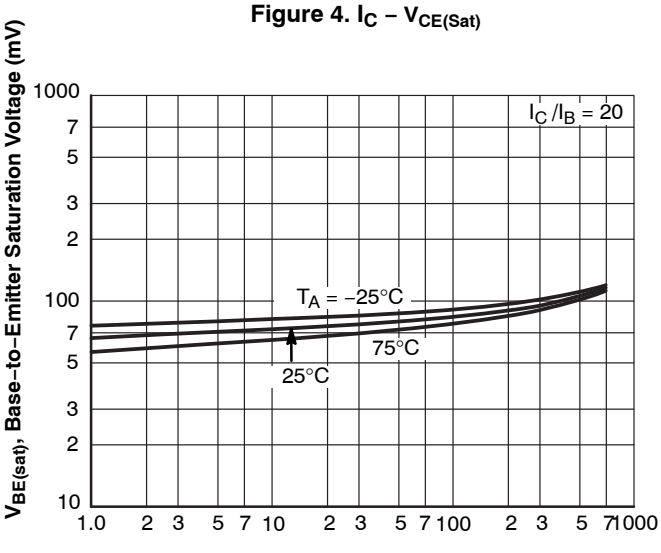

Figure 6. $V_{BE(Sat)} - I_C$

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TYPICAL CHARACTERISTICS (CONTINUED)

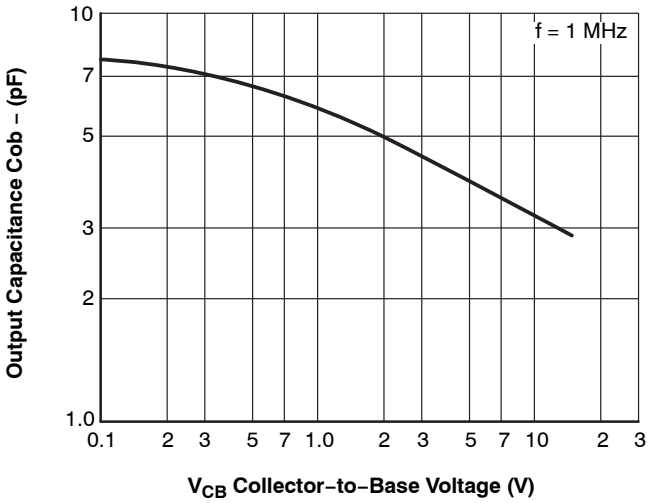

Figure 7. Cob – V_{CB}

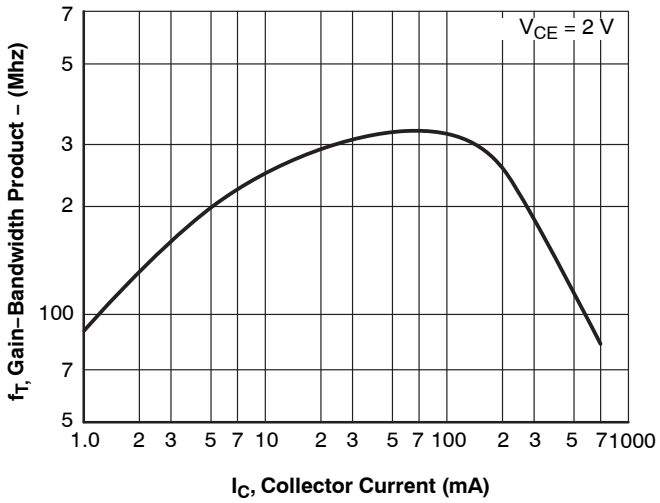

Figure 8. f_T – I_C

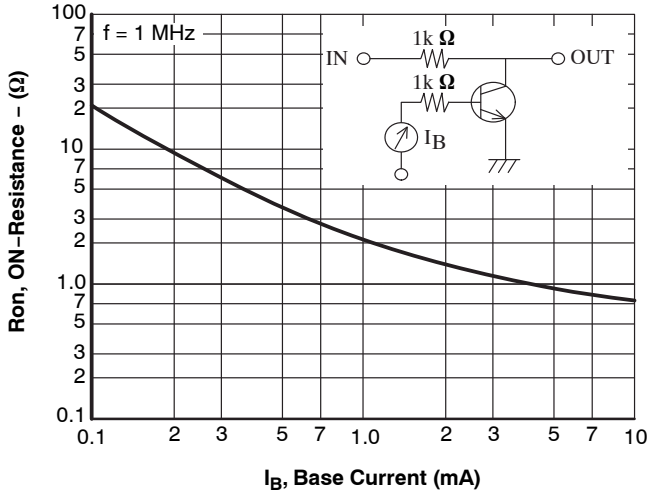

Figure 9. Ron – I_B

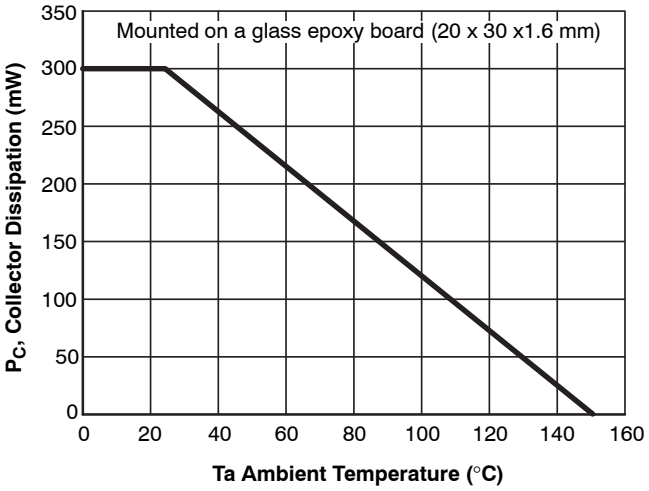

Figure 10. P_C – Ta

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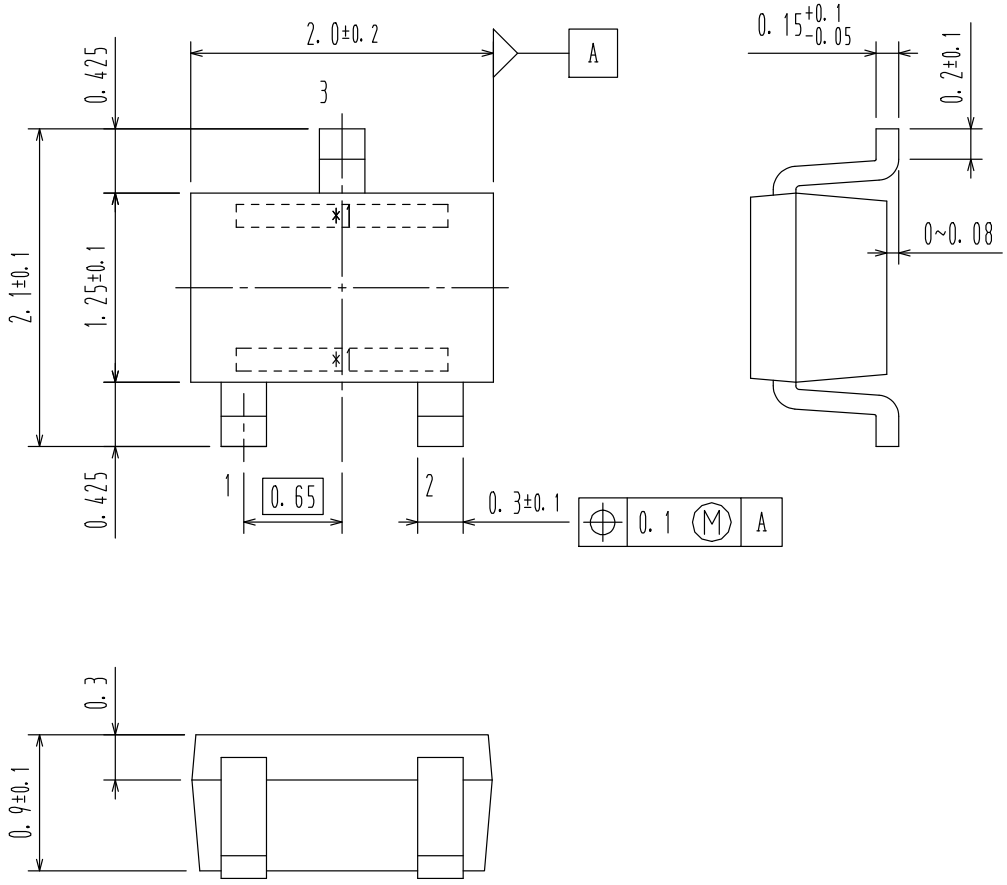

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