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

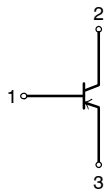
Specifications

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

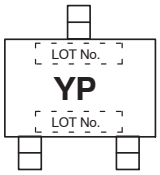
Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

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.

© Semiconductor Components Industries, LLC, 2013

Downloaded from Arrow.com.

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.

Share Feedback
Your Opinion Matters

Downloaded from Arrow.com.

TYPICAL CHARACTERISTICS

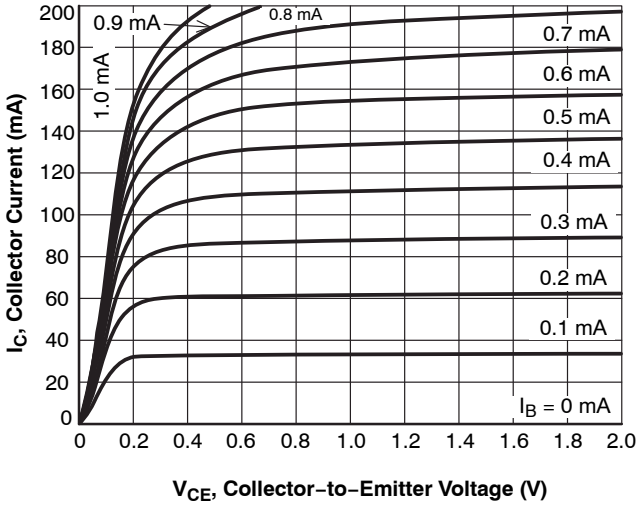


Figure 1. $I_C - V_{CE}$

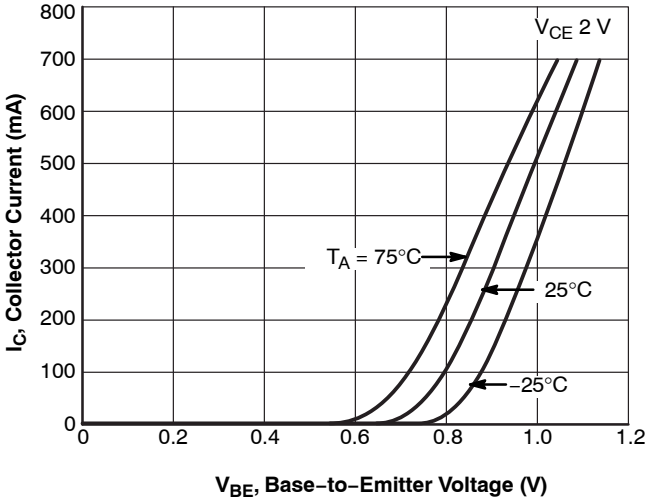


Figure 2. $I_C - V_{BE}$

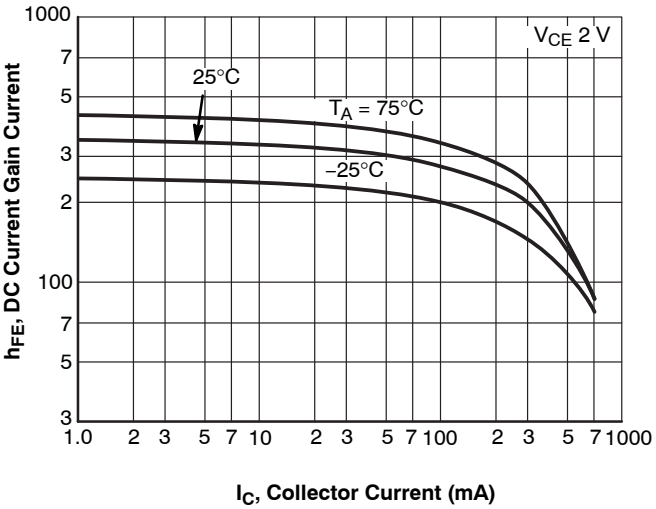


Figure 3. $h_{FE} - I_C$

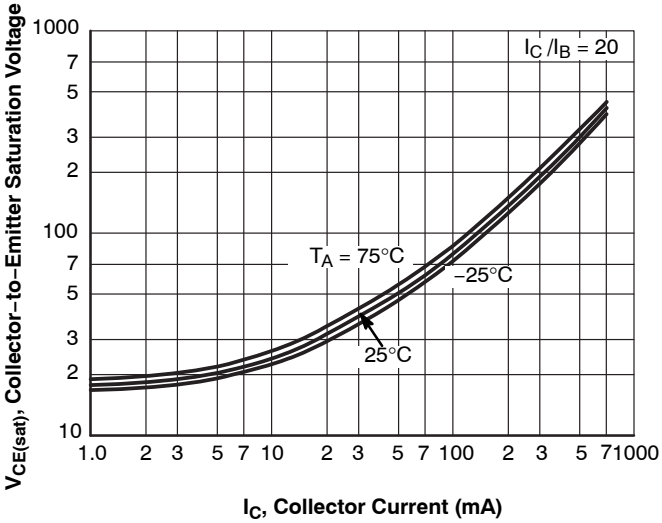


Figure 4. $I_C - V_{CE(Sat)}$

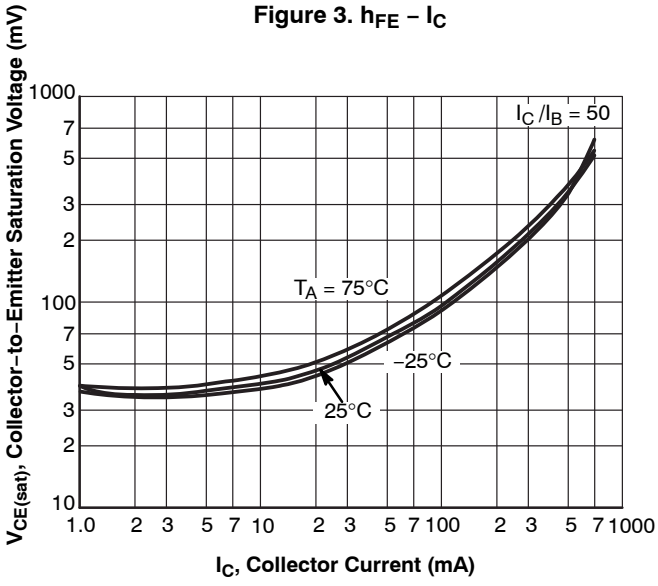


Figure 5. $V_{CE(Sat)} - I_C$

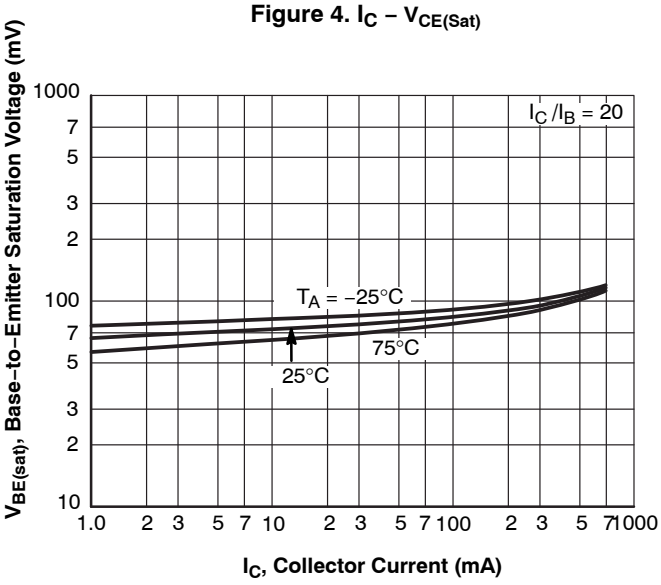


Figure 6. $V_{BE(Sat)} - I_C$

Share Feedback
Your Opinion Matters

Downloaded from Arrow.com.

TYPICAL CHARACTERISTICS (CONTINUED)

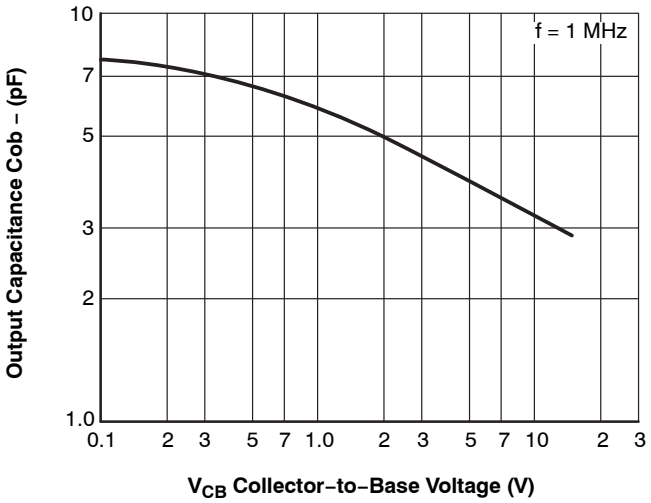


Figure 7. Cob – V_{CB}

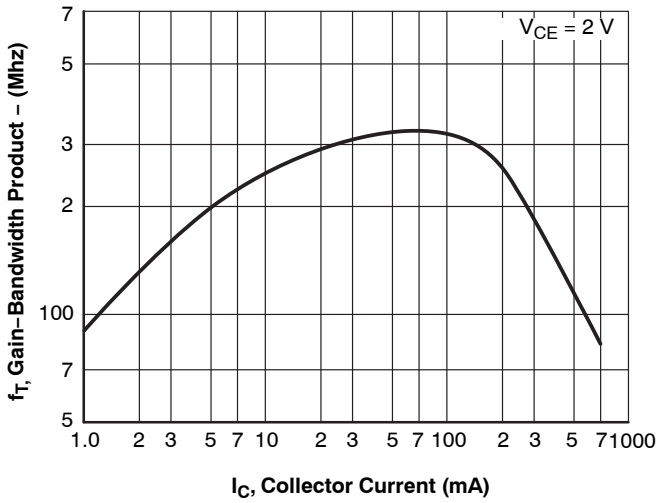


Figure 8. f_T – I_C

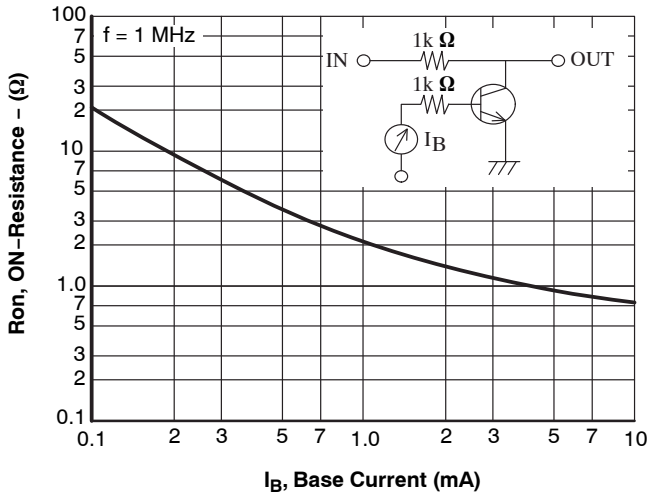


Figure 9. Ron – I_B

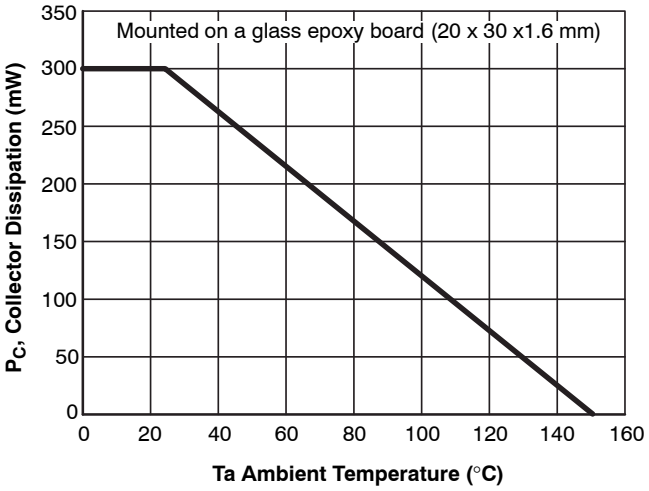


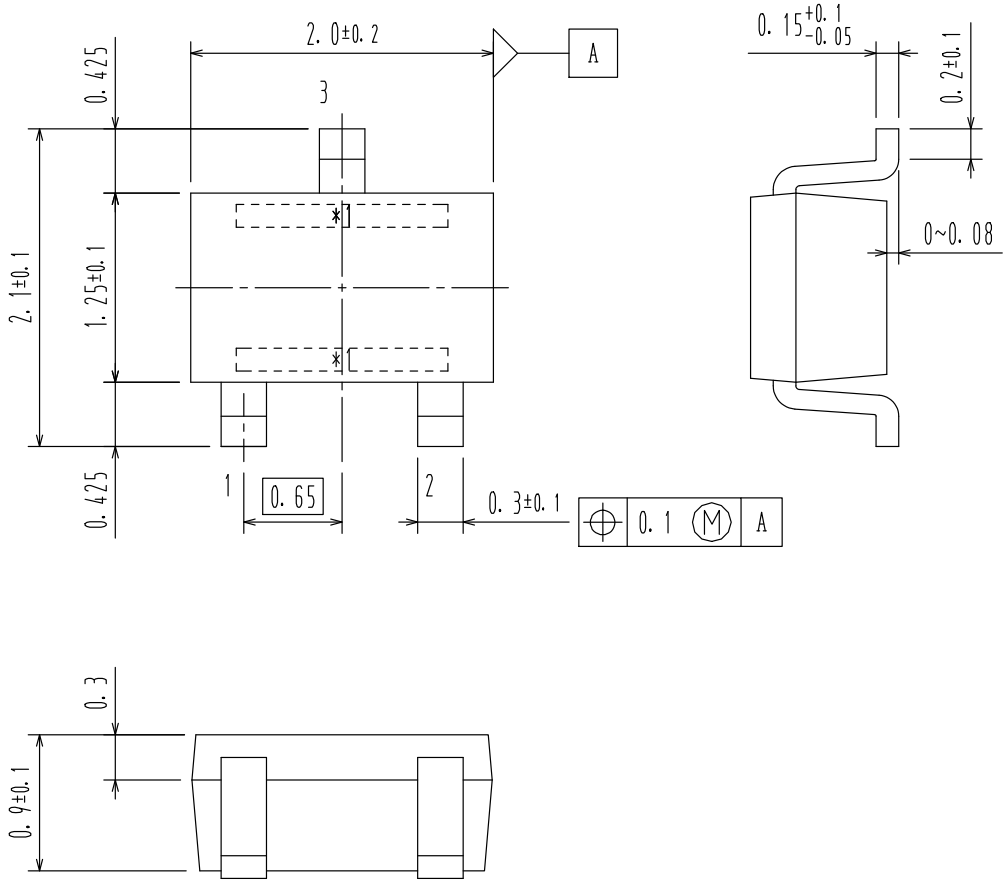
Figure 10. P_C – Ta

Share Feedback
Your Opinion Matters

Downloaded from Arrow.com.

SC−70 / MCP3
CASE 419AJ
ISSUE O

DATE 30 NOV 2011



DOCUMENT NUMBER:	**98AON65442E**	Electronic versions are uncontrolled except when accessed directly from the Document Repository. Printed versions are uncontrolled except when stamped "CONTROLLED COPY" in red.
DESCRIPTION:	**SC−70 / MCP3**	**PAGE 1 OF 1**

onsemi and ONSEMI are trademarks of Semiconductor Components Industries, LLC dba **onsemi** or its subsidiaries in the United States and/or other countries. **onsemi** reserves the right to make changes without further notice to any products herein. **onsemi** makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does **onsemi** assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. **onsemi** does not convey any license under its patent rights nor the rights of others.

Downloaded from Arrow.com.

onsemi, ONSEMI , and other names, marks, and brands are registered and/or common law trademarks of Semiconductor Components Industries, LLC dba "**onsemi**" or its affiliates and/or subsidiaries in the United States and/or other countries. **onsemi** owns the rights to a number of patents, trademarks, copyrights, trade secrets, and other intellectual property. A listing of **onsemi**'s product/patent coverage may be accessed at www.onsemi.com/site/pdf/Patent−Marking.pdf. **onsemi** reserves the right to make changes at any time to any products or information herein, without notice. The information herein is provided "as−is" and **onsemi** makes no warranty, representation or guarantee regarding the accuracy of the information, product features, availability, functionality, or suitability of its products for any particular purpose, nor does **onsemi** assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. Buyer is responsible for its products and applications using **onsemi** products, including compliance with all laws, regulations and safety requirements or standards, regardless of any support or applications information provided by **onsemi**. "Typical" parameters which may be provided in **onsemi** data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. **onsemi** does not convey any license under any of its intellectual property rights nor the rights of others. **onsemi** products are not designed, intended, or authorized for use as a critical component in life support systems or any FDA Class 3 medical devices or medical devices with a same or similar classification in a foreign jurisdiction or any devices intended for implantation in the human body. Should Buyer purchase or use **onsemi** products for any such unintended or unauthorized application, Buyer shall indemnify and hold **onsemi** and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that **onsemi** was negligent regarding the design or manufacture of the part. **onsemi** is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.

ADDITIONAL INFORMATION

TECHNICAL PUBLICATIONS:
Technical Library: www.onsemi.com/design/resources/technical−documentation
onsemi Website: www.onsemi.com

ONLINE SUPPORT: www.onsemi.com/support
For additional information, please contact your local Sales Representative at www.onsemi.com/support/sales

◊

Downloaded from Arrow.com.