

# IMH20TR1G

## Dual Bias Resistor Transistor

### NPN Surface Mount

- Low  $V_{CC}$  (sat) 80 mV max at  $I_C/I_B = 50$  mA/2.5 mA
- High Current:  $I_C = 600$  mA max
- This is a Pb-Free Device

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

Rating	Symbol	Value	Unit
Collector-Base Voltage	$V_{(BR)CBO}$	30	Vdc
Collector-Emitter Voltage	$V_{(BR)CEO}$	15	Vdc
Emitter-Base Voltage	$V_{(BR)EBO}$	5.0	Vdc
Collector Current - Continuous	$I_C$	600	mAdc

#### THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Power Dissipation*	$P_D$	300	mW
Junction Temperature	$T_J$	150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$

\*Total for both Transistors.

#### Q1 + Q2: NPN

#### ELECTRICAL CHARACTERISTICS

( $T_A = 25^\circ\text{C}$  unless otherwise noted)

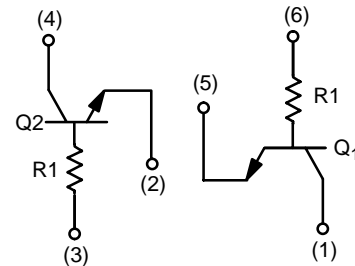
Characteristic	Symbol	Min	Max	Unit
Collector-Emitter Breakdown Voltage ( $I_C = 1.0$ mAdc, $I_B = 0$ )	$V_{(BR)CEO}$	15	-	Vdc
Collector-Base Breakdown Voltage ( $I_C = 50$ $\mu$ Adc, $I_E = 0$ )	$V_{(BR)CBO}$	30	-	Vdc
Emitter-Base Breakdown Voltage ( $I_E = 50$ $\mu$ Adc, $I_C = 0$ )	$V_{(BR)EBO}$	5.0	-	Vdc
Collector-Base Cutoff Current ( $V_{CB} = 20$ Vdc, $I_E = 0$ )	$I_{CBO}$	-	0.5	$\mu$ Adc
Emitter-Base Cutoff Current ( $V_{EB} = 4.0$ V, $I_C = 0$ )	$I_{EBO}$	-	0.5	$\mu$ Adc
DC Current Gain (Note 1) ( $V_{CE} = 5.0$ Vdc, $I_C = 50$ mAdc)	$h_{FE}$	100	600	-
Collector-Emitter Saturation Voltage ( $I_C = 50$ mAdc, $I_B = 2.5$ mAdc)	$V_{CE(sat)}$	-	80	mV
Input Resistance	$R_1$	1.54	2.86	k $\Omega$

1. Pulse Test: Pulse Width  $\leq 300$   $\mu$ s, D.C.  $\leq 2\%$ .

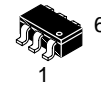


ON Semiconductor®

<http://onsemi.com>

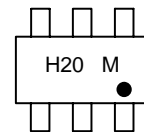


SC-74



SC-74R  
318AA  
Style 21

#### MARKING DIAGRAM



H20 = Specific Device Code  
M = Date Code

#### ORDERING INFORMATION

Device	Package	Shipping†
IMH20TR1G	SC-74R	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.

# MECHANICAL CASE OUTLINE

## PACKAGE DIMENSIONS

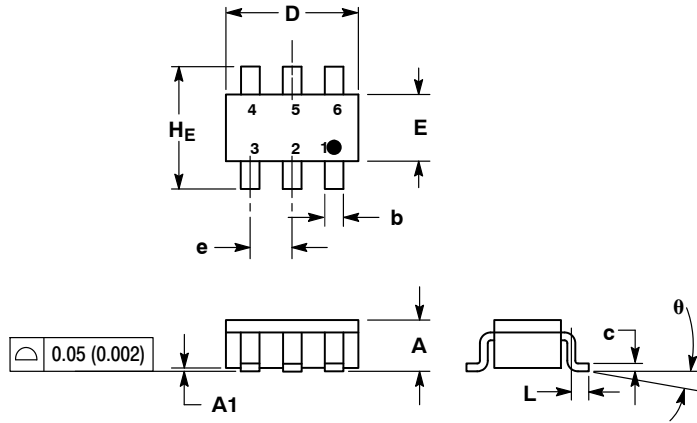
ON Semiconductor®



SCALE 2:1

**SC-74R**  
CASE 318AA-01  
ISSUE B

DATE 27 MAY 2005

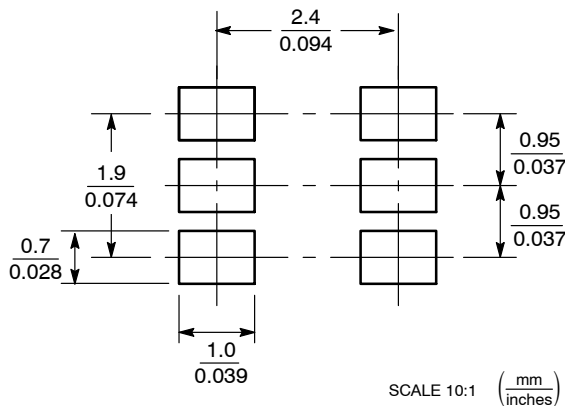


**NOTES:**

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.

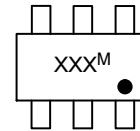
DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.90	1.00	1.10	0.035	0.039	0.043
A1	0.01	0.06	0.10	0.001	0.002	0.004
b	0.25	0.37	0.50	0.010	0.015	0.020
c	0.10	0.18	0.26	0.004	0.007	0.010
D	2.90	3.00	3.10	0.114	0.118	0.122
E	1.30	1.50	1.70	0.051	0.059	0.067
e	0.85	0.95	1.05	0.034	0.037	0.041
L	0.20	0.40	0.60	0.008	0.016	0.024
HE	2.50	2.75	3.00	0.099	0.108	0.118
θ	0°	-	10°	0°	-	10°

**SOLDERING FOOTPRINT\***



SCALE 10:1 (mm/inches)

**GENERIC MARKING DIAGRAM\***



- XXX = Specific Device Code
- M = Date Code
- = Pb-Free Package

\*This information is generic. Please refer to device data sheet for actual part marking. Pb-Free indicator, "G" or microdot "▪", may or may not be present.

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

STYLE 20:  
PIN 1. COLLECTOR 1  
2. BASE 2  
3. EMITTER 2  
4. COLLECTOR 2  
5. BASE 1  
6. EMITTER 1

STYLE 21:  
PIN 1. COLLECTOR 1  
2. EMITTER 2  
3. BASE 2  
4. COLLECTOR 2  
5. EMITTER 1  
6. BASE 1

<b>DOCUMENT NUMBER:</b>	<b>98AON13505D</b>	Electronic versions are uncontrolled except when accessed directly from the Document Repository. Printed versions are uncontrolled except when stamped "CONTROLLED COPY" in red.
<b>DESCRIPTION:</b>	<b>SC-74R</b>	<b>PAGE 1 OF 1</b>

ON Semiconductor and are trademarks of Semiconductor Components Industries, LLC dba ON Semiconductor or its subsidiaries in the United States and/or other countries. ON Semiconductor reserves the right to make changes without further notice to any products herein. ON Semiconductor makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does ON Semiconductor 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. ON Semiconductor does not convey any license under its patent rights nor the rights of others.

**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](http://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](http://www.onsemi.com/design/resources/technical-documentation)  
onsemi Website: [www.onsemi.com](http://www.onsemi.com)

### ONLINE SUPPORT: [www.onsemi.com/support](http://www.onsemi.com/support)

For additional information, please contact your local Sales Representative at [www.onsemi.com/support/sales](http://www.onsemi.com/support/sales)