# Complementary Bias Resistor Transistors R1 = 10 k $\Omega$ , R2 = 47 k $\Omega$

## NPN and PNP Transistors with Monolithic Bias Resistor Network

This series of digital transistors is designed to replace a single device and its external resistor bias network. The Bias Resistor Transistor (BRT) contains a single transistor with a monolithic bias network consisting of two resistors; a series base resistor and a base-emitter resistor. The BRT eliminates these individual components by integrating them into a single device. The use of a BRT can reduce both system cost and board space.

#### **Features**

- Simplifies Circuit Design
- Reduces Board Space
- Reduces Component Count
- S and NSV Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable\*
- These Devices are Pb-Free, Halogen Free/BFR Free and are RoHS Compliant

#### **MAXIMUM RATINGS**

(T<sub>A</sub> = 25°C both polarities Q<sub>1</sub> (PNP) & Q<sub>2</sub> (NPN), unless otherwise noted)

Rating	Symbol	Max	Unit
Collector-Base Voltage	$V_{CBO}$	50	Vdc
Collector-Emitter Voltage	$V_{CEO}$	50	Vdc
Collector Current - Continuous	I <sub>C</sub>	100	mAdc
Input Forward Voltage	$V_{IN(fwd)}$	40	Vdc
Input Reverse Voltage	V <sub>IN(rev)</sub>	6	Vdc

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.

#### **ORDERING INFORMATION**

Device	Package	Shipping <sup>†</sup>
MUN5314DW1T1G, SMUN5314DW1T1G*	SOT-363	3,000 / Tape & Reel
NSVMUN5314DW1T3G*	SOT-363	10,000 / Tape & Reel
NSBC114YPDXV6T1G, NSVBC114YPDXV6T1G*	SOT-563	4,000 / Tape & Reel
NSBC114YPDXV6T5G	SOT-563	8,000 / Tape & Reel
NSBC114YPDP6T5G	SOT-963	8,000 / Tape & Reel

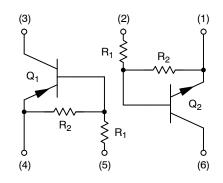
<sup>†</sup>For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.



#### ON Semiconductor®

www.onsemi.com

#### **PIN CONNECTIONS**



#### **MARKING DIAGRAMS**



SOT-363 CASE 419B





SOT-563 CASE 463A





SOT-963 CASE 527AD



14/Q = Specific Device Code

M = Date Code\*
■ Pb-Free Package

(Note: Microdot may be in either location)

\*Date Code orientation may vary depending upon manufacturing location.

#### THERMAL CHARACTERISTICS

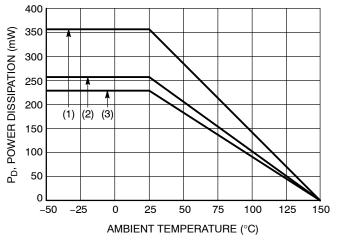
	Characteristic	Symbol	Max	Unit
MUN5314DW1 (SOT-363) ON	IE JUNCTION HEATED	•	·	
Total Device Dissipation  T <sub>A</sub> = 25°C (Note 1)  (Note 2)  Derate above 25°C  (Note 2)	(Note 1)	P <sub>D</sub>	187 256 1.5 2.0	mW mW/°C
Thermal Resistance, Junction to Ambient	(Note 1) (Note 2)	$R_{ heta JA}$	670 490	°C/W
MUN5314DW1 (SOT-363) BC	TH JUNCTION HEATED (Note 3)	•		
Total Device Dissipation $T_A = 25^{\circ}C \qquad \text{(Note 1)}$ $\text{(Note 2)}$ Derate above 25°C $\text{(Note 2)}$	(Note 1)	P <sub>D</sub>	250 385 2.0 3.0	mW mW/°C
Thermal Resistance, Junction to Ambient (Note 2)	(Note 1)	$R_{ hetaJA}$	493 325	°C/W
Thermal Resistance, Junction to Lead (Note 1) (Note 2)		$R_{ heta JL}$	188 208	°C/W
Junction and Storage Temper	ature Range	T <sub>J</sub> , T <sub>stg</sub>	-55 to +150	°C
NSBC114YPDXV6 (SOT-563)	ONE JUNCTION HEATED			
Total Device Dissipation  T <sub>A</sub> = 25°C (Note 1)  Derate above 25°C	(Note 1)	P <sub>D</sub>	357 2.9	mW mW/°C
Thermal Resistance, Junction to Ambient	(Note 1)	$R_{ heta JA}$	350	°C/W
NSBC114YPDXV6 (SOT-563)	BOTH JUNCTION HEATED (Note 3)			
Total Device Dissipation T <sub>A</sub> = 25°C (Note 1) Derate above 25°C	(Note 1)	P <sub>D</sub>	500 4.0	mW mW/°C
Thermal Resistance, Junction to Ambient	(Note 1)	$R_{ heta JA}$	250	°C/W
Junction and Storage Temper	ature Range	T <sub>J</sub> , T <sub>stg</sub>	-55 to +150	°C
NSBC114YPDP6 (SOT-963)	ONE JUNCTION HEATED			
Total Device Dissipation $T_A = 25^{\circ}C \qquad \text{(Note 4)}$ $\text{(Note 5)}$ Derate above 25°C $\text{(Note 5)}$	(Note 4)	P <sub>D</sub>	231 269 1.9 2.2	MW mW/°C
Thermal Resistance, Junction to Ambient (Note 5)	(Note 4)	$R_{ hetaJA}$	540 464	°C/W
NSBC114YPDP6 (SOT-963) I	BOTH JUNCTION HEATED (Note 3)			
Total Device Dissipation  T <sub>A</sub> = 25°C (Note 4)  (Note 5)  Derate above 25°C  (Note 5)	(Note 4)	P <sub>D</sub>	339 408 2.7 3.3	MW mW/°C
Thermal Resistance, Junction to Ambient (Note 5)	(Note 4)	$R_{ hetaJA}$	369 306	°C/W
Junction and Storage Temper	ature Range	T <sub>J</sub> , T <sub>stg</sub>	-55 to +150	°C

- FR-4 @ Minimum Pad.
   FR-4 @ 1.0 × 1.0 Inch Pad.
   Both junction heated values assume total power is sum of two equally powered channels.
   FR-4 @ 100 mm², 1 oz. copper traces, still air.
   FR-4 @ 500 mm², 1 oz. copper traces, still air.

**ELECTRICAL CHARACTERISTICS** (T<sub>A</sub> = 25°C both polarities Q<sub>1</sub> (PNP) & Q<sub>2</sub> (NPN), unless otherwise noted)

Characteristic	Symbol	Min	Тур	Max	Unit
OFF CHARACTERISTICS			•	•	•
Collector-Base Cutoff Current $(V_{CB} = 50 \text{ V}, I_E = 0)$	I <sub>CBO</sub>	-	-	100	nAdc
Collector-Emitter Cutoff Current (V <sub>CE</sub> = 50 V, I <sub>B</sub> = 0)	I <sub>CEO</sub>	-	-	500	nAdc
Emitter-Base Cutoff Current $(V_{EB} = 6.0 \text{ V}, I_C = 0)$	I <sub>EBO</sub>	-	-	0.2	mAdc
Collector-Base Breakdown Voltage (I <sub>C</sub> = 10 μA, I <sub>E</sub> = 0)	V <sub>(BR)CBO</sub>	50	-	-	Vdc
Collector-Emitter Breakdown Voltage (Note 6) (I <sub>C</sub> = 2.0 mA, I <sub>B</sub> = 0)	V <sub>(BR)CEO</sub>	50	_	-	Vdc
ON CHARACTERISTICS	<u> </u>				
DC Current Gain (Note 6) (I <sub>C</sub> = 5.0 mA, V <sub>CE</sub> = 10 V)	h <sub>FE</sub>	80	140	-	
Collector-Emitter Saturation Voltage (Note 6) (I <sub>C</sub> = 10 mA, I <sub>B</sub> = 0.3 mA)	V <sub>CE(sat)</sub>	-	_	0.25	V
Input Voltage (Off)	V <sub>i(off)</sub>	- -	0.7 0.7	0.3 0.3	Vdc
Input Voltage (On) $(V_{CE} = 0.2 \text{ V, } I_{C} = 1.0 \text{ mA}) \text{ (NPN)} $ $(V_{CE} = 0.2 \text{ V, } I_{C} = 1.0 \text{ mA}) \text{ (PNP)}$	V <sub>i(on)</sub>	1.4 1.4	0.8 0.9	- -	Vdc
Output Voltage (On) $(V_{CC} = 5.0 \text{ V}, V_B = 2.5 \text{ V}, R_L = 1.0 \text{ k}\Omega)$	V <sub>OL</sub>	-	-	0.2	Vdc
Output Voltage (Off) (V <sub>CC</sub> = 5.0 V, V <sub>B</sub> = 0.5 V, R <sub>L</sub> = 1.0 k $\Omega$ )	V <sub>OH</sub>	4.9	-	-	Vdc
Input Resistor	R1	7.0	10	13	kΩ
Resistor Ratio	R <sub>1</sub> /R <sub>2</sub>	0.17	0.21	0.25	

<sup>6.</sup> Pulsed Condition: Pulse Width = 300 ms, Duty Cycle ≤ 2%.



- (1) SOT-363;  $1.0 \times 1.0$  Inch Pad
- (2) SOT-563; Minimum Pad (3) SOT-963; 100 mm<sup>2</sup>, 1 oz. Copper Trace

Figure 1. Derating Curve

## TYPICAL CHARACTERISTICS – NPN TRANSISTOR MUN5314DW1, NSBC114YPDXV6

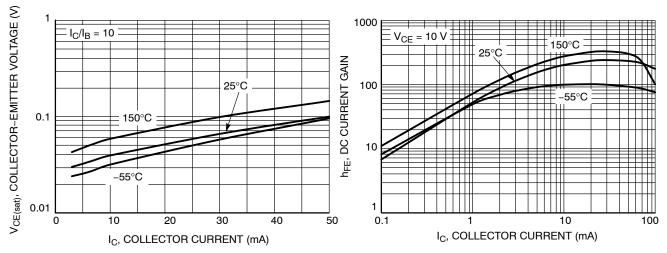


Figure 2. V<sub>CE(sat)</sub> vs. I<sub>C</sub>

Figure 3. DC Current Gain

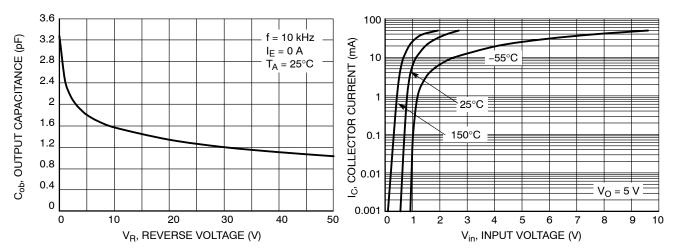


Figure 4. Output Capacitance

Figure 5. Output Current vs. Input Voltage

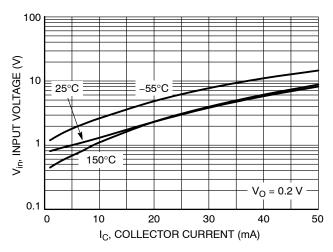


Figure 6. Input Voltage vs. Output Current

## TYPICAL CHARACTERISTICS – PNP TRANSISTOR MUN5314DW1, NSBC114YPDXV6

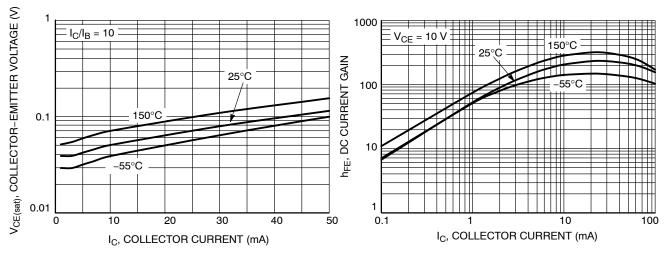


Figure 7. V<sub>CE(sat)</sub> vs. I<sub>C</sub>

Figure 8. DC Current Gain

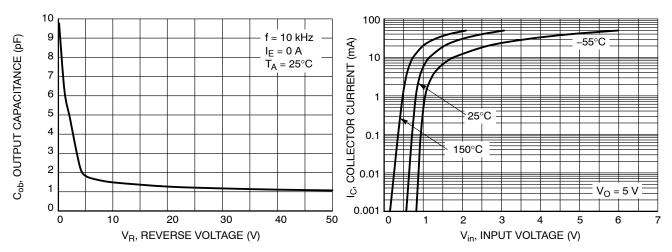


Figure 9. Output Capacitance

Figure 10. Output Current vs. Input Voltage

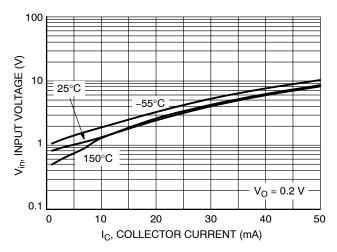


Figure 11. Input Voltage vs. Output Current

## TYPICAL CHARACTERISTICS – NPN TRANSISTOR NSBC114YPDP6

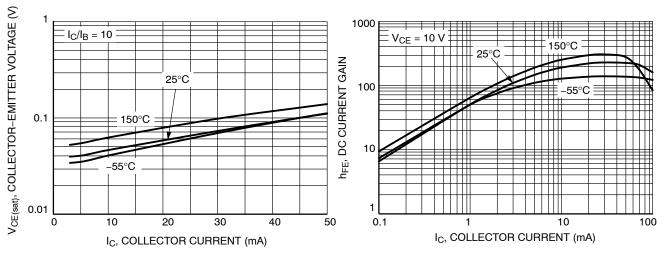


Figure 12. V<sub>CE(sat)</sub> vs. I<sub>C</sub>

Figure 13. DC Current Gain

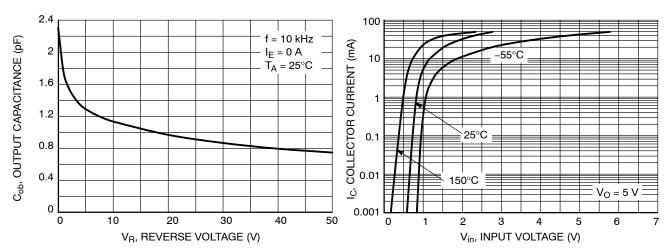


Figure 14. Output Capacitance

Figure 15. Output Current vs. Input Voltage

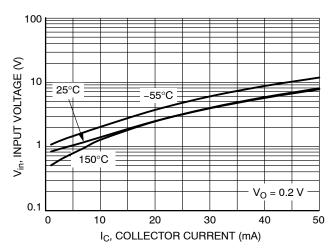


Figure 16. Input Voltage vs. Output Current

## TYPICAL CHARACTERISTICS – PNP TRANSISTOR NSBC114YPDP6

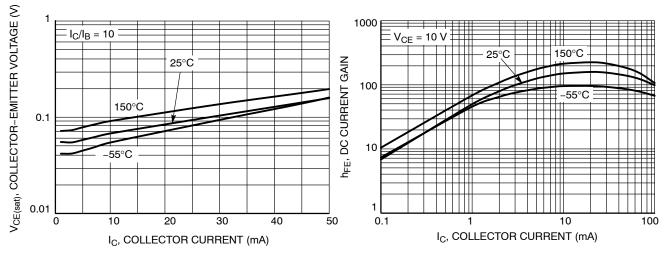


Figure 17. V<sub>CE(sat)</sub> vs. I<sub>C</sub>

Figure 18. DC Current Gain

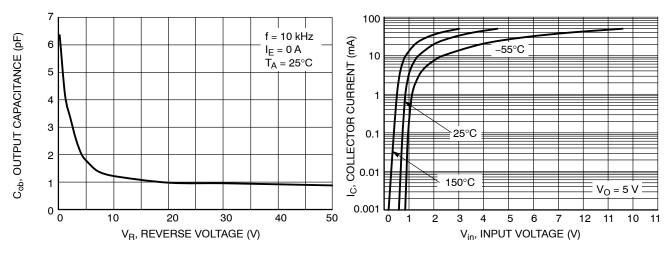


Figure 19. Output Capacitance

Figure 20. Output Current vs. Input Voltage

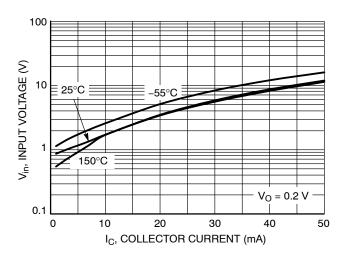
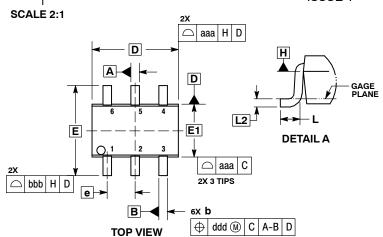


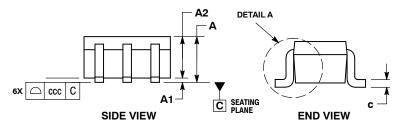
Figure 21. Input Voltage vs. Output Current



#### SC-88/SC70-6/SOT-363 CASE 419B-02 **ISSUE Y**

**DATE 11 DEC 2012** 





#### NOTES:

- 1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M. 1994.
- CONTROLLING DIMENSION: MILLIMETERS.
  DIMENSIONS D AND E1 DO NOT INCLUDE MOLD FLASH,
- DIMENSIONS D AND E1 DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS. MOLD FLASH, PROTRUSIONS, OR GATE BURRS SHALL NOT EXCEED 0.20 PER END. DIMENSIONS D AND E1 AT THE OUTERMOST EXTREMES OF THE PLASTIC BODY AND DATUM H. DIMENSIONS b AND B ARE DETERMINED AT DATUM H. DIMENSIONS b AND C APPLY TO THE FLAT SECTION OF THE LEAD BETWEEN 0.08 AND 0.15 FROM THE TIP.

- DIMENSION 6 DOES NOT INCLUDE DAMBAR PROTRUSION. ALLOWABLE DAMBAR PROTRUSION SHALL BE 0.08 TOTAL IN
- EXCESS OF DIMENSION 6 AT MAXIMUM MATERIAL CONDITION. THE DAMBAR CANNOT BE LOCATED ON THE LOWER RADIUS OF THE FOOT.

	MILLIMETERS				INCHES	3
DIM	MIN	NOM	MAX	MIN	NOM	MAX
Α			1.10			0.043
A1	0.00		0.10	0.000		0.004
A2	0.70	0.90	1.00	0.027	0.035	0.039
b	0.15	0.20	0.25	0.006	0.008	0.010
С	0.08	0.15	0.22	0.003	0.006	0.009
D	1.80	2.00	2.20	0.070	0.078	0.086
E	2.00	2.10	2.20	0.078	0.082	0.086
E1	1.15	1.25	1.35	0.045	0.049	0.053
е	0.65 BSC		0.026 BSC			
L	0.26	0.36	0.46	0.010	0.014	0.018
L2	0.15 BSC			-	0.006 BS	SC
aaa		0.15			0.006	
bbb	0.30				0.012	
ccc	0.10				0.004	
ddd		0.10			0.004	

#### **GENERIC MARKING DIAGRAM\***



XXX = Specific Device Code

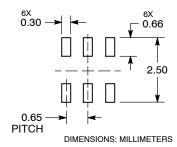
= Date Code\*

= Pb-Free Package

(Note: Microdot may be in either location)

- \*Date Code orientation and/or position may vary depending upon manufacturing location.
- \*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. Some products may not follow the Generic Marking.

#### **RECOMMENDED SOLDERING FOOTPRINT\***



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

#### **STYLES ON PAGE 2**

DOCUMENT NUMBER:	98ASB42985B	Electronic versions are uncontrolled except when accessed directly from Printed versions are uncontrolled except when stamped "CONTROLLED"	
DESCRIPTION:	SC-88/SC70-6/SOT-363		PAGE 1 OF 2

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.

#### SC-88/SC70-6/SOT-363 CASE 419B-02 ISSUE Y

**DATE 11 DEC 2012** 

STYLE 1: PIN 1. EMITTER 2 2. BASE 2 3. COLLECTOR 1 4. EMITTER 1 5. BASE 1 6. COLLECTOR 2	STYLE 2: CANCELLED	STYLE 3: CANCELLED	STYLE 4: PIN 1. CATHODE 2. CATHODE 3. COLLECTOR 4. EMITTER 5. BASE 6. ANODE	STYLE 5: PIN 1. ANODE 2. ANODE 3. COLLECTOR 4. EMITTER 5. BASE 6. CATHODE	STYLE 6: PIN 1. ANODE 2 2. N/C 3. CATHODE 1 4. ANODE 1 5. N/C 6. CATHODE 2
STYLE 7: PIN 1. SOURCE 2 2. DRAIN 2 3. GATE 1 4. SOURCE 1 5. DRAIN 1 6. GATE 2	STYLE 8: CANCELLED	STYLE 9: PIN 1. EMITTER 2 2. EMITTER 1 3. COLLECTOR 1 4. BASE 1 5. BASE 2 6. COLLECTOR 2	STYLE 10: PIN 1. SOURCE 2 2. SOURCE 1 3. GATE 1 4. DRAIN 1 5. DRAIN 2 6. GATE 2	STYLE 11: PIN 1. CATHODE 2 2. CATHODE 2 3. ANODE 1 4. CATHODE 1 5. CATHODE 1 6. ANODE 2	STYLE 12: PIN 1. ANODE 2 2. ANODE 2 3. CATHODE 1 4. ANODE 1 5. ANODE 1 6. CATHODE 2
STYLE 13: PIN 1. ANODE 2. N/C 3. COLLECTOR 4. EMITTER 5. BASE 6. CATHODE	STYLE 14: PIN 1. VREF 2. GND 3. GND 4. IOUT 5. VEN 6. VCC	STYLE 15: PIN 1. ANODE 1 2. ANODE 2 3. ANODE 3 4. CATHODE 3 5. CATHODE 2 6. CATHODE 1	STYLE 16: PIN 1. BASE 1 2. EMITTER 2 3. COLLECTOR 2 4. BASE 2 5. EMITTER 1 6. COLLECTOR 1	STYLE 17: PIN 1. BASE 1 2. EMITTER 1 3. COLLECTOR 2 4. BASE 2 5. EMITTER 2 6. COLLECTOR 1	STYLE 18: PIN 1. VIN1 2. VCC 3. VOUT2 4. VIN2 5. GND 6. VOUT1
STYLE 19: PIN 1. I OUT 2. GND 3. GND 4. V CC 5. V EN 6. V REF	STYLE 20: PIN 1. COLLECTOR 2. COLLECTOR 3. BASE 4. EMITTER 5. COLLECTOR 6. COLLECTOR	STYLE 21: PIN 1. ANODE 1 2. N/C 3. ANODE 2 4. CATHODE 2 5. N/C 6. CATHODE 1	STYLE 22: PIN 1. D1 (i) 2. GND 3. D2 (i) 4. D2 (c) 5. VBUS 6. D1 (c)	STYLE 23: PIN 1. Vn 2. CH1 3. Vp 4. N/C 5. CH2 6. N/C	STYLE 24: PIN 1. CATHODE 2. ANODE 3. CATHODE 4. CATHODE 5. CATHODE 6. CATHODE
STYLE 25: PIN 1. BASE 1 2. CATHODE 3. COLLECTOR 2 4. BASE 2 5. EMITTER 6. COLLECTOR 1	STYLE 26: PIN 1. SOURCE 1 2. GATE 1 3. DRAIN 2 4. SOURCE 2 5. GATE 2 6. DRAIN 1	STYLE 27: PIN 1. BASE 2 2. BASE 1 3. COLLECTOR 1 4. EMITTER 1 5. EMITTER 2 6. COLLECTOR 2	STYLE 28: PIN 1. DRAIN 2. DRAIN 3. GATE 4. SOURCE 5. DRAIN 6. DRAIN	STYLE 29: PIN 1. ANODE 2. ANODE 3. COLLECTOR 4. EMITTER 5. BASE/ANODE 6. CATHODE	STYLE 30: PIN 1. SOURCE 1 2. DRAIN 2 3. DRAIN 2 4. SOURCE 2 5. GATE 1 6. DRAIN 1

Note: Please refer to datasheet for style callout. If style type is not called out in the datasheet refer to the device datasheet pinout or pin assignment.

DOCUMENT NUMBER:	98ASB42985B	Electronic versions are uncontrolled except when accessed directly from Printed versions are uncontrolled except when stamped "CONTROLLED"	
DESCRIPTION:	SC-88/SC70-6/SOT-363		PAGE 2 OF 2

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.

## MECHANICAL CASE OUTLINE

PACKAGE DIMENSIONS



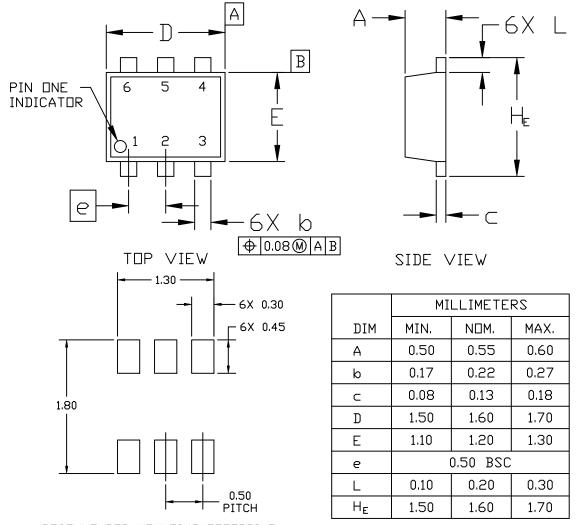


#### SOT-563, 6 LEAD CASE 463A ISSUE H

**DATE 26 JAN 2021** 

#### NOTES:

- DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 2009.
- 2. CONTROLLING DIMENSION: MILLIMETERS
- 3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.



#### RECOMMENDED MOUNTING FOOTPRINT\*

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

DOCUMENT NUMBER:	98AON11126D	Electronic versions are uncontrolled except when accessed directly from the Document Repr Printed versions are uncontrolled except when stamped "CONTROLLED COPY" in red.	
DESCRIPTION:	SOT-563, 6 LEAD		PAGE 1 OF 2

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.

#### **SOT-563, 6 LEAD**

CASE 463A ISSUE H

2

1

**DATE 26 JAN 2021** 

STYLE 1: PIN 1. EMITTER 1 2. BASE 1 3. COLLECTOR 2 4. EMITTER 2 5. BASE 2 6. COLLECTOR 1	STYLE 2: PIN 1. EMITTER 1 2. EMITTER 2 3. BASE 2 4. COLLECTOR 2 5. BASE 1 6. COLLECTOR 1	STYLE 3: PIN 1. CATHODE 1 2. CATHODE 1 3. ANODE/ANODE 4. CATHODE 2 5. CATHODE 2 6. ANODE/ANODE
STYLE 4: PIN 1. COLLECTOR 2. COLLECTOR 3. BASE 4. EMITTER 5. COLLECTOR 6. COLLECTOR	STYLE 5: PIN 1. CATHODE 2. CATHODE 3. ANODE 4. ANODE 5. CATHODE 6. CATHODE	STYLE 6: PIN 1. CATHODE 2. ANODE 3. CATHODE 4. CATHODE 5. CATHODE 6. CATHODE
STYLE 7: PIN 1. CATHODE 2. ANODE 3. CATHODE 4. CATHODE 5. ANODE 6. CATHODE	STYLE 8: PIN 1. DRAIN 2. DRAIN 3. GATE 4. SUURCE 5. DRAIN 6. DRAIN	STYLE 9: PIN 1. SDURCE 1 2. GATE 1 3. DRAIN 2 4. SDURCE 2 5. GATE 2 6. DRAIN 1
STYLE 10: PIN 1. CATHODE 1 2. N/C 3. CATHODE 2 4. ANODE 2 5. N/C 6. ANODE 1	STYLE 11: PIN 1. EMITTER 2 2. BASE 2 3. COLLECTOR 1 4. EMITTER 1 5. BASE 1 6. COLLECTOR 2	

## GENERIC MARKING DIAGRAM\*



XX = Specific Device CodeM = Month 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. Some products may not follow the Generic Marking.

DOCUMENT NUMBER:	98AON11126D Electronic versions are uncontrolled except when accessed directly from the Docume Printed versions are uncontrolled except when stamped "CONTROLLED COPY" in re		
DESCRIPTION:	SOT-563, 6 LEAD		PAGE 2 OF 2

ON Semiconductor and III 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.

#### **MECHANICAL CASE OUTLINE**

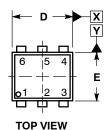


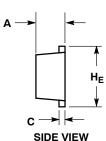


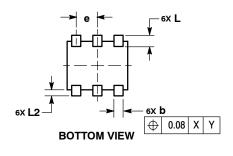
SOT-963 CASE 527AD-01 **ISSUE E** 

**DATE 09 FEB 2010** 









3. 4. 5.	BASE 1 COLLECTOR 2 EMITTER 2 BASE 2 COLLECTOR
2. 3. 4. 5.	4: COLLECTOR COLLECTOR BASE EMITTER COLLECTOR COLLECTOR
2. 3. 4. 5.	7: CATHODE ANODE CATHODE CATHODE ANODE CATHODE
2.	10: CATHODE 1 N/C CATHODE 2

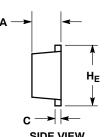
4. ANODE 2
 5. N/C

6. ANODE 1

STYLE 1:

PIN 1. EMITTER 1

STYLE 2: PIN 1. EMITTER 1 2. EMITTER2 3. BASE 2 4. COLLECTOR 2 5. BASE 1 6. COLLECTOR 1	STYLE 3: PIN 1. CATHODE 1 2. CATHODE 1 3. ANODE/ANODE 2 4. CATHODE 2 5. CATHODE 2 6. ANODE/ANODE 1
STYLE 5:	STYLE 6:
PIN 1. CATHODE	PIN 1. CATHODE
2. CATHODE	2. ANODE
<ol><li>ANODE</li></ol>	<ol><li>CATHODE</li></ol>
4. ANODE	4. CATHODE
5. CATHODE 6. CATHODE	5. CATHODE 6. CATHODE
6. CATHODE	6. CATHODE
STYLE 8:	STYLE 9:
PIN 1. DRAIN	PIN 1. SOURCE 1
2. DRAIN	2. GATE 1
3. GATE	3. DRAIN 2
4. SOURCE	4. SOURCE 2
5. DRAIN 6. DRAIN	5. GATE 2 6. DRAIN 1
O. DITAIN	o. Ditalivi



- NOTES:
  1. DIMENSIONING AND TOLERANCING PER ASME
- DIMENSIONING AND TOLEHANCING PER ASM Y14.5M, 1994.
   CONTROLLING DIMENSION: MILLIMETERS
   MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF
- BASE MATERIAL. 4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS.

	MILLIMETERS			
DIM	MIN	NOM	MAX	
Α	0.34	0.37	0.40	
b	0.10	0.15	0.20	
С	0.07	0.12	0.17	
D	0.95	1.00	1.05	
E	0.75	0.80	0.85	
е	0.35 BSC			
HE	0.95	1.00	1.05	
L	0.19 REF			
L2	0.05	0.10	0.15	

#### **GENERIC MARKING DIAGRAM\***



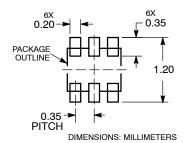
= Specific Device Code

= Month Code Μ

\*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.

#### **RECOMMENDED MOUNTING FOOTPRINT**



DOCUMENT NUMBER:	98AON26456D	Electronic versions are uncontrolled except when accessed directly from the Document Repository. Printed versions are uncontrolled except when stamped "CONTROLLED COPY" in red.	
DESCRIPTION:	SOT-963, 1X1, 0.35P		PAGE 1 OF 1

ON Semiconductor and (III) 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 <a href="www.onsemi.com/site/pdf/Patent-Marking.pdf">www.onsemi.com/site/pdf/Patent-Marking.pdf</a>. 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 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 EDA 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 p

#### **PUBLICATION ORDERING INFORMATION**

LITERATURE FULFILLMENT:
Email Requests to: orderlit@onsemi.com

onsemi Website: www.onsemi.com

TECHNICAL SUPPORT North American Technical Support: Voice Mail: 1 800-282-9855 Toll Free USA/Canada Phone: 011 421 33 790 2910

Europe, Middle East and Africa Technical Support:

Phone: 00421 33 790 2910

For additional information, please contact your local Sales Representative