

# MUN5213DW1, NSBC144EDXV6, NSBC144EDP6

## Dual NPN Bias Resistor Transistors

**R1 = 47 kΩ, R2 = 47 kΩ**

### NPN 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, common for Q<sub>1</sub> and Q<sub>2</sub>, unless otherwise noted)

Rating	Symbol	Max	Unit
Collector-Base Voltage	V <sub>CBO</sub>	50	Vdc
Collector-Emitter Voltage	V <sub>CEO</sub>	50	Vdc
Collector Current – Continuous	I <sub>C</sub>	100	mAdc
Input Forward Voltage	V <sub>IN(fwd)</sub>	40	Vdc
Input Reverse Voltage	V <sub>IN(rev)</sub>	10	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†
MUN5213DW1T1G, SMUN5213DW1T1G*	SOT-363	3,000 / Tape & Reel
MUN5213DW1T3G, NSVMUN5213DW1T3G*	SOT-363	10,000 / Tape & Reel
NSBC144EDXV6T1G	SOT-563	4,000 / Tape & Reel
NSBC144EDXV6T5G	SOT-563	8,000 / Tape & Reel
NSBC144EDP6T5G	SOT-963	8,000 / Tape & Reel

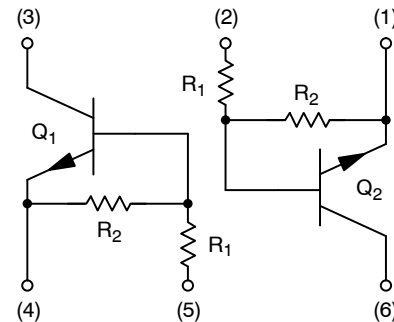
†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.



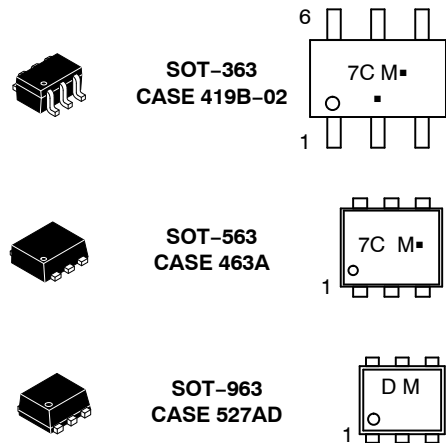
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#### PIN CONNECTIONS



#### MARKING DIAGRAMS



7C/D = 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.

# MUN5213DW1, NSBC144EDXV6, NSBC144EDP6

## THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
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### MUN5213DW1 (SOT-363) ONE JUNCTION HEATED

Total Device Dissipation $T_A = 25^\circ\text{C}$ (Note 13) (Note 14) Derate above $25^\circ\text{C}$ (Note 13) (Note 14)	$P_D$	187 256 1.5 2.0	mW  mW/ $^\circ\text{C}$
Thermal Resistance, Junction to Ambient (Note 13) (Note 14)	$R_{\theta JA}$	670 490	$^\circ\text{C/W}$

### MUN5213DW1 (SOT-363) BOTH JUNCTION HEATED (Note 15)

Total Device Dissipation $T_A = 25^\circ\text{C}$ (Note 13) (Note 14) Derate above $25^\circ\text{C}$ (Note 13) (Note 14)	$P_D$	250 385 2.0 3.0	mW  mW/ $^\circ\text{C}$
Thermal Resistance, Junction to Ambient (Note 13) (Note 14)	$R_{\theta JA}$	493 325	$^\circ\text{C/W}$
Thermal Resistance, Junction to Lead (Note 13) (Note 14)	$R_{\theta JL}$	188 208	$^\circ\text{C/W}$
Junction and Storage Temperature Range	$T_J, T_{stg}$	-55 to +150	$^\circ\text{C}$

### NSBC144EDXV6 (SOT-563) ONE JUNCTION HEATED

Total Device Dissipation $T_A = 25^\circ\text{C}$ (Note 13) Derate above $25^\circ\text{C}$ (Note 13)	$P_D$	357 2.9	mW mW/ $^\circ\text{C}$
Thermal Resistance, Junction to Ambient (Note 13)	$R_{\theta JA}$	350	$^\circ\text{C/W}$

### NSBC144EDXV6 (SOT-563) BOTH JUNCTION HEATED (Note 15)

Total Device Dissipation $T_A = 25^\circ\text{C}$ (Note 13) Derate above $25^\circ\text{C}$ (Note 13)	$P_D$	500 4.0	mW mW/ $^\circ\text{C}$
Thermal Resistance, Junction to Ambient (Note 13)	$R_{\theta JA}$	250	$^\circ\text{C/W}$
Junction and Storage Temperature Range	$T_J, T_{stg}$	-55 to +150	$^\circ\text{C}$

### NSBC144EDP6 (SOT-963) ONE JUNCTION HEATED

Total Device Dissipation $T_A = 25^\circ\text{C}$ (Note 16) (Note 17) Derate above $25^\circ\text{C}$ (Note 16) (Note 17)	$P_D$	231 269 1.9 2.2	MW  mW/ $^\circ\text{C}$
Thermal Resistance, Junction to Ambient (Note 16) (Note 17)	$R_{\theta JA}$	540 464	$^\circ\text{C/W}$

### NSBC144EDP6 (SOT-963) BOTH JUNCTION HEATED (Note 15)

Total Device Dissipation $T_A = 25^\circ\text{C}$ (Note 16) (Note 17) Derate above $25^\circ\text{C}$ (Note 16) (Note 17)	$P_D$	339 408 2.7 3.3	MW  mW/ $^\circ\text{C}$
Thermal Resistance, Junction to Ambient (Note 16) (Note 17)	$R_{\theta JA}$	369 306	$^\circ\text{C/W}$
Junction and Storage Temperature Range	$T_J, T_{stg}$	-55 to +150	$^\circ\text{C}$

13. FR-4 @ Minimum Pad.

14. FR-4 @ 1.0 x 1.0 Inch Pad.

15. Both junction heated values assume total power is sum of two equally powered channels.

16. FR-4 @ 100 mm<sup>2</sup>, 1 oz. copper traces, still air.

17. FR-4 @ 500 mm<sup>2</sup>, 1 oz. copper traces, still air.

# MUN5213DW1, NSBC144EDXV6, NSBC144EDP6

## ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ , common for $Q_1$ and $Q_2$ , unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
<b>OFF CHARACTERISTICS</b>					
Collector-Base Cutoff Current ( $V_{CB} = 50\text{ V}$ , $I_E = 0$ )	$I_{CBO}$	-	-	100	nAdc
Collector-Emitter Cutoff Current ( $V_{CE} = 50\text{ V}$ , $I_B = 0$ )	$I_{CEO}$	-	-	500	nAdc
Emitter-Base Cutoff Current ( $V_{EB} = 6.0\text{ V}$ , $I_C = 0$ )	$I_{EBO}$	-	-	0.1	mAdc
Collector-Base Breakdown Voltage ( $I_C = 10\ \mu\text{A}$ , $I_E = 0$ )	$V_{(BR)CBO}$	50	-	-	Vdc
Collector-Emitter Breakdown Voltage (Note 18) ( $I_C = 2.0\text{ mA}$ , $I_B = 0$ )	$V_{(BR)CEO}$	50	-	-	Vdc

## ON CHARACTERISTICS

DC Current Gain (Note 18) ( $I_C = 5.0\text{ mA}$ , $V_{CE} = 10\text{ V}$ )	$h_{FE}$	80	140	-	
Collector-Emitter Saturation Voltage (Note 18) ( $I_C = 10\text{ mA}$ , $I_B = 0.3\text{ mA}$ )	$V_{CE(sat)}$	-	-	0.25	V
Input Voltage (Off) ( $V_{CE} = 5.0\text{ V}$ , $I_C = 100\ \mu\text{A}$ )	$V_{i(off)}$	-	1.2	-	Vdc
Input Voltage (On) ( $V_{CE} = 0.2\text{ V}$ , $I_C = 3.0\text{ mA}$ )	$V_{i(on)}$	-	1.9	-	Vdc
Output Voltage (On) ( $V_{CC} = 5.0\text{ V}$ , $V_B = 3.5\text{ V}$ , $R_L = 1.0\text{ k}\Omega$ )	$V_{OL}$	-	-	0.2	Vdc
Output Voltage (Off) ( $V_{CC} = 5.0\text{ V}$ , $V_B = 0.5\text{ V}$ , $R_L = 1.0\text{ k}\Omega$ )	$V_{OH}$	4.9	-	-	Vdc
Input Resistor	$R_1$	32.9	47	61.1	$\text{k}\Omega$
Resistor Ratio	$R_1/R_2$	0.8	1.0	1.2	

18. Pulsed Condition: Pulse Width = 300 ms, Duty Cycle  $\leq$  2%.



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

Figure 33. Derating Curve

TYPICAL CHARACTERISTICS  
MUN5213DW1, NSBC144EDXV6

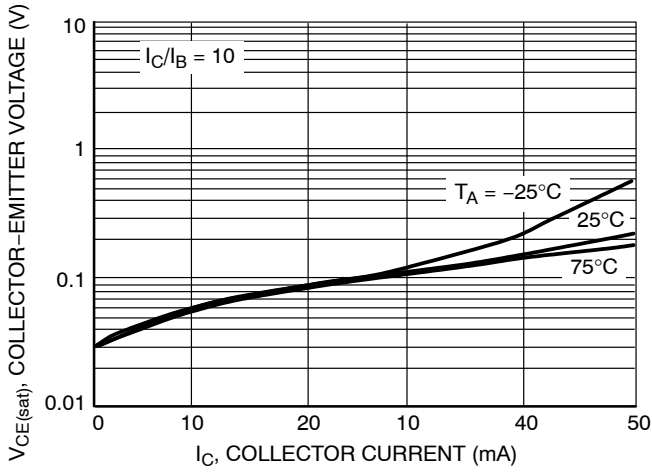


Figure 34.  $V_{CE(sat)}$  vs.  $I_C$

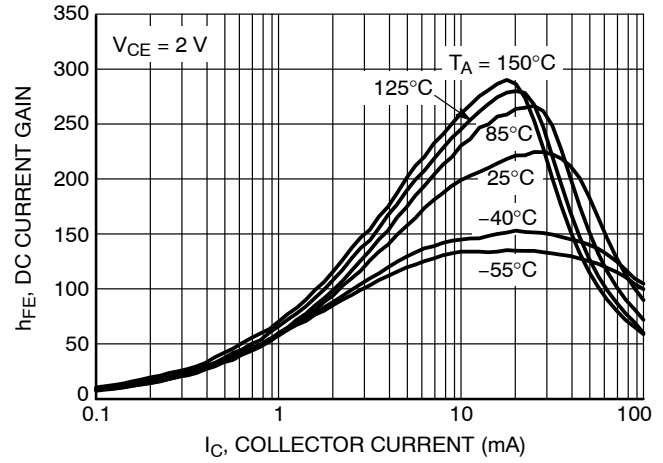


Figure 35. DC Current Gain

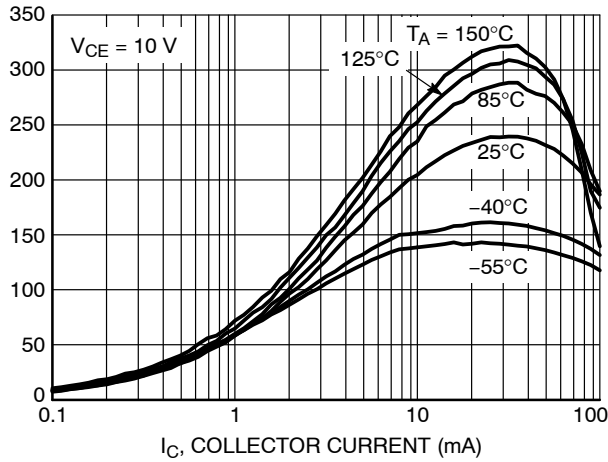


Figure 36. DC Current Gain

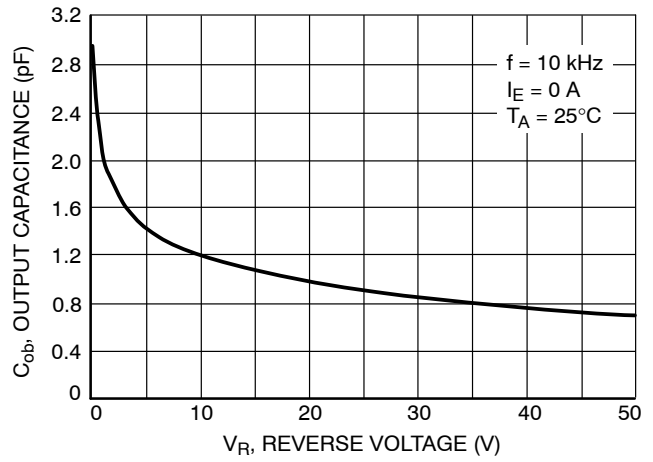


Figure 37. Output Capacitance

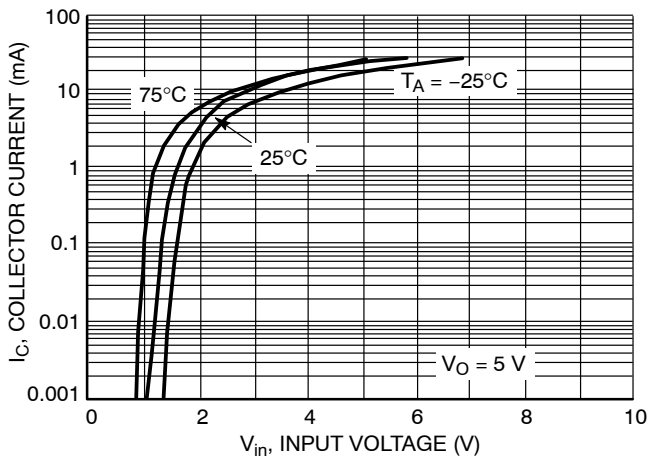


Figure 38. Output Current vs. Input Voltage

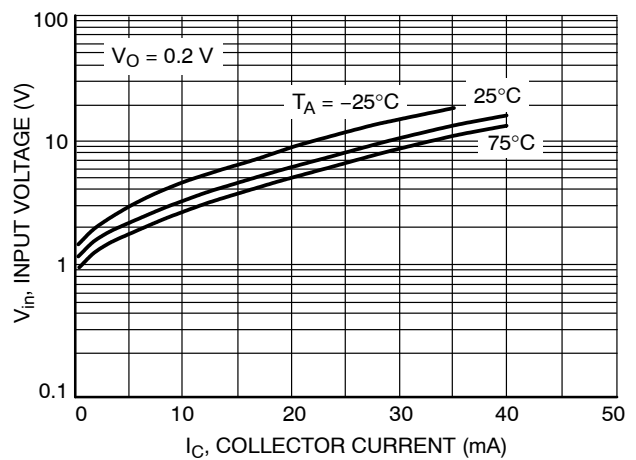


Figure 39. Input Voltage vs. Output Current

TYPICAL CHARACTERISTICS  
NSBC144EDP6

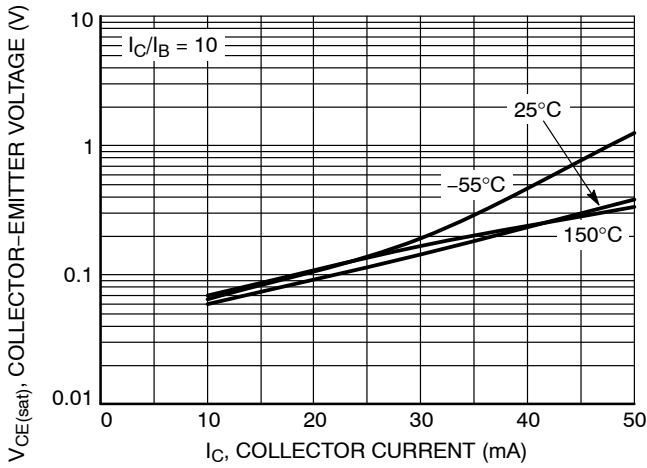


Figure 40.  $V_{CE(sat)}$  vs.  $I_C$

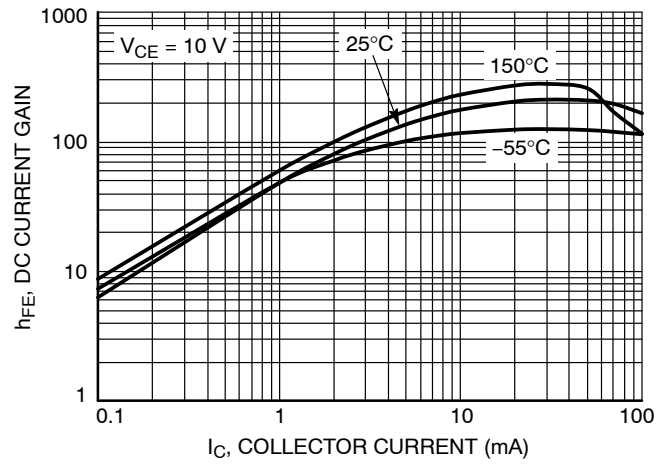


Figure 41. DC Current Gain

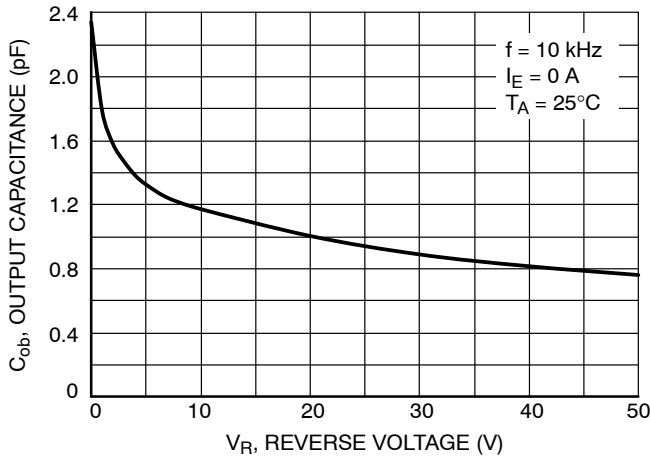


Figure 42. Output Capacitance

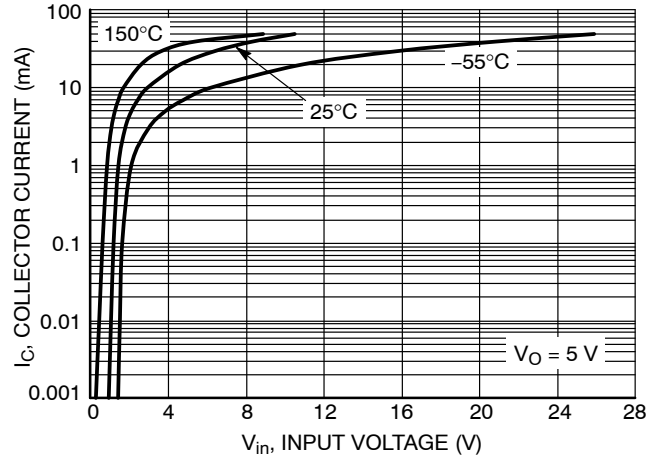


Figure 43. Output Current vs. Input Voltage

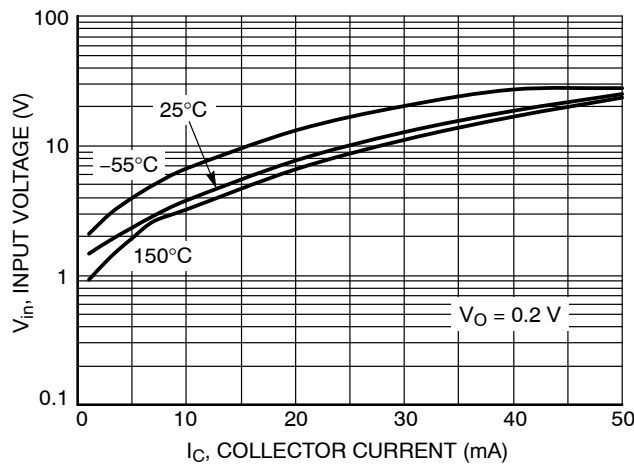


Figure 44. Input Voltage vs. Output Current



1  
 SCALE 2:1

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.
  2. CONTROLLING DIMENSION: MILLIMETERS.
  3. 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.
  4. DIMENSIONS D AND E1 AT THE OUTERMOST EXTREMES OF THE PLASTIC BODY AND DATUM H.
  5. DATUMS A AND B ARE DETERMINED AT DATUM H.
  6. DIMENSIONS b AND c APPLY TO THE FLAT SECTION OF THE LEAD BETWEEN 0.08 AND 0.15 FROM THE TIP.
  7. DIMENSION b DOES NOT INCLUDE DAMBAR PROTRUSION. ALLOWABLE DAMBAR PROTRUSION SHALL BE 0.08 TOTAL IN EXCESS OF DIMENSION b AT MAXIMUM MATERIAL CONDITION. THE DAMBAR CANNOT BE LOCATED ON THE LOWER RADIUS OF THE FOOT.

DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	---	---	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
C	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
e	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 BSC		
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
- M = 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**

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<b>DESCRIPTION:</b>	<b>SC-88/SC70-6/SOT-363</b>	<b>PAGE 1 OF 2</b>

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

DATE 11 DEC 2012

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

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# MECHANICAL CASE OUTLINE

## PACKAGE DIMENSIONS

ON Semiconductor®



SCALE 4:1

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

DATE 26 JAN 2021

**NOTES:**

1. 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.



DIM	MILLIMETERS		
	MIN.	NOM.	MAX.
A	0.50	0.55	0.60
b	0.17	0.22	0.27
c	0.08	0.13	0.18
D	1.50	1.60	1.70
E	1.10	1.20	1.30
e	0.50 BSC		
L	0.10	0.20	0.30
H <sub>E</sub>	1.50	1.60	1.70

**RECOMMENDED MOUNTING 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.

<b>DOCUMENT NUMBER:</b>	<b>98AON11126D</b>	Electronic versions are uncontrolled except when accessed directly from the Document Repository. Printed versions are uncontrolled except when stamped "CONTROLLED COPY" in red.
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**SOT-563, 6 LEAD**  
CASE 463A  
ISSUE H

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 2  
4. CATHODE 2  
5. CATHODE 2  
6. ANODE/ANODE 1

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. SOURCE  
5. DRAIN  
6. DRAIN

STYLE 9:  
PIN 1. SOURCE 1  
2. GATE 1  
3. DRAIN 2  
4. SOURCE 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 Code  
M = 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.

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<b>DESCRIPTION:</b>	<b>SOT-563, 6 LEAD</b>	<b>PAGE 2 OF 2</b>

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# MECHANICAL CASE OUTLINE

## PACKAGE DIMENSIONS

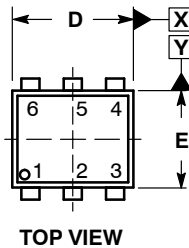
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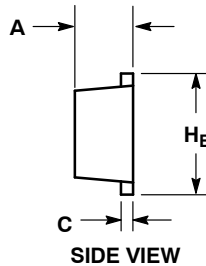
SCALE 4:1

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

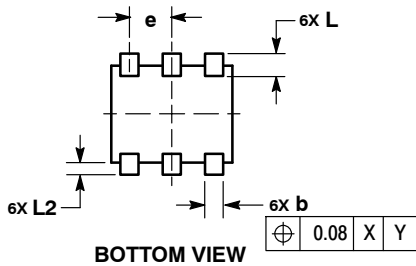
DATE 09 FEB 2010



TOP VIEW



SIDE VIEW



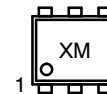
BOTTOM VIEW

NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS
3. 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
A	0.34	0.37	0.40
b	0.10	0.15	0.20
C	0.07	0.12	0.17
D	0.95	1.00	1.05
E	0.75	0.80	0.85
e	0.35 BSC		
H <sub>E</sub>	0.95	1.00	1.05
L	0.19 REF		
L2	0.05	0.10	0.15

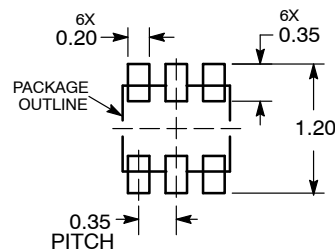
**GENERIC MARKING DIAGRAM\***



X = Specific Device Code  
M = Month Code

\*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**



DIMENSIONS: MILLIMETERS

- 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. 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 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. SOURCE3  
5. DRAIN  
6. DRAIN
- STYLE 9:**  
PIN 1. SOURCE 1  
2. GATE 1  
3. DRAIN 2  
4. SOURCE 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

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