

# **MUN5312DW1T2G Datasheet**



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DiGi Electronics Part Number MUN5312DW1T2G-DG

Manufacturer onsemi

Manufacturer Product Number MUN5312DW1T2G

Description TRANS NPN/PNP PREBIAS SOT363

Detailed Description Pre-Biased Bipolar Transistor (BJT) 1 NPN, 1 PNP - P

re-Biased (Dual) 50V 100mA 385mW Surface Moun

t SC-88/SC70-6/SOT-363



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DiGi is a global authorized distributor of electronic components.



### **Purchase and inquiry**

Manufacturer Product Number:	Manufacturer:
MUN5312DW1T2G	onsemi
Series:	Product Status:
	Active
Transistor Type:	Current - Collector (Ic) (Max):
1 NPN, 1 PNP - Pre-Biased (Dual)	100mA
Voltage - Collector Emitter Breakdown (Max):	Resistor - Base (R1):
50V	22kOhms
Resistor - Emitter Base (R2):	DC Current Gain (hFE) (Min) @ Ic, Vce:
22kOhms	60 @ 5mA, 10V
Vce Saturation (Max) @ lb, lc:	Current - Collector Cutoff (Max):
250mV @ 300μA, 10mA	500nA
Frequency - Transition:	Power - Max:
	385mW
Mounting Type:	Package / Case:
Surface Mount	6-TSSOP, SC-88, SOT-363
Supplier Device Package:	Base Product Number:
SC-88/SC70-6/SOT-363	MUN5312

### **Environmental & Export classification**

8541.21.0095

RoHS Status:	Moisture Sensitivity Level (MSL):
ROHS3 Compliant	1 (Unlimited)
REACH Status:	ECCN:
REACH Unaffected	EAR99
HTSUS:	

### Complementary Bias Resistor Transistors R1 = 22 k $\Omega$ , R2 = 22 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	Ic	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 <sup>†</sup>
MUN5312DW1T1G, SMUN5312DW1T1G*	SOT-363	3,000 / Tape & Reel
NSVMUN5312DW1T3G*	SOT-363	10,000 / Tape & Reel
MUN5312DW1T2G, NSVMUN5312DW1T2G*	SOT-363	3,000 / Tape & Reel
NSBC124EPDXV6T1G, NSVBC124EPDXV6T1G*	SOT-563	4,000 / Tape & Reel
NSBC124EPDXV6T5G	SOT-563	8,000 / Tape & Reel
NSBC124EPDP6T5G	SOT-963	8,000 / Tape & Reel

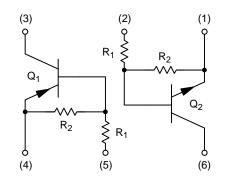
<sup>†</sup>For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.



### ON Semiconductor®

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#### **PIN CONNECTIONS**



#### **MARKING DIAGRAMS**



SOT-363 CASE 419B-02





SOT-563 CASE 463A





SOT-963 CASE 527AD



12/R = 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
MUN5312DW1 (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
MUN5312DW1 (SOT-363) BC	OTH JUNCTION HEATED (Note 3)			
Total Device Dissipation $T_A = 25^{\circ}C \qquad (Note 1)$ $(Note 2)$ Derate above 25°C $(Note 2)$	(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
NSBC124EPDXV6 (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
NSBC124EPDXV6 (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
NSBC124EPDP6 (SOT-963)	ONE JUNCTION HEATED			
Total Device Dissipation $T_A = 25^{\circ}C$ (Note 4) (Note 5) Derate above 25°C (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
NSBC124EPDP6 (SOT-963)	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

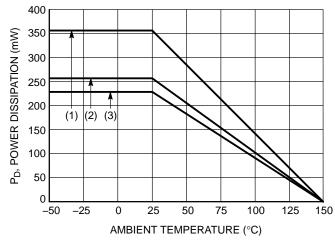
- 1. FR-4 @ Minimum Pad.
- FR-4 @ Millimum Pad.
   FR-4 @ 1.0 × 1.0 Inch Pad.
   Both junction heated values assume total power is sum of two equally powered channels.
   FR-4 @ 100 mm², 1 oz. copper traces, still air.
   FR-4 @ 500 mm², 1 oz. copper traces, still air.

**ELECTRICAL CHARACTERISTICS** ( $T_A = 25^{\circ}C$  both polarities  $Q_1$  (PNP) &  $Q_2$  (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 $(V_{CE} = 50 \text{ V}, I_B = 0)$	I <sub>CEO</sub>	-	-	500	nAdc
Emitter-Base Cutoff Current (V <sub>EB</sub> = 6.0 V, I <sub>C</sub> = 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					
DC Current Gain (Note 6) (I <sub>C</sub> = 5.0 mA, V <sub>CE</sub> = 10 V)	h <sub>FE</sub>	60	100	_	
Collector-Emitter Saturation Voltage (Note 6) $(I_C = 10 \text{ mA}, I_B = 0.3 \text{ mA})$	V <sub>CE(sat)</sub>	_	_	0.25	V
Input Voltage (Off) $(V_{CE} = 5.0 \text{ V}, I_{C} = 100 \mu\text{A}) \text{ (NPN)} $ $(V_{CE} = 5.0 \text{ V}, I_{C} = 100 \mu\text{A}) \text{ (PNP)}$	V <sub>i(off)</sub>		1.2 1.2	- -	Vdc
Input Voltage (On) (V <sub>CE</sub> = 0.2 V, I <sub>C</sub> = 5.0 mA) (NPN) (V <sub>CE</sub> = 0.2 V, I <sub>C</sub> = 5.0 mA) (PNP)	V <sub>i(on)</sub>	<u>-</u> -	1.9 2.0	_ _	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) ( $V_{CC} = 5.0 \text{ V}, V_B = 0.5 \text{ V}, R_L = 1.0 \text{ k}\Omega$ )	V <sub>OH</sub>	4.9	-	_	Vdc
Input Resistor	R1	15.4	22	28.6	kΩ
Resistor Ratio	R <sub>1</sub> /R <sub>2</sub>	0.8	1.0	1.2	

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.

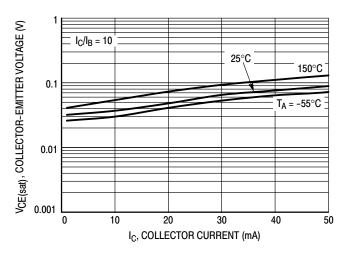
6. Pulsed Condition: Pulse Width = 300 ms, Duty Cycle ≤ 2%.



- (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

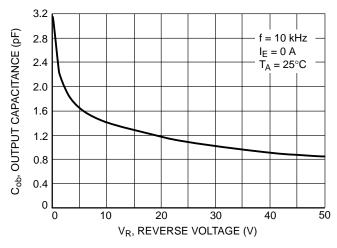
## TYPICAL CHARACTERISTICS – NPN TRANSISTOR MUN5312DW1, NSBC124EPDXV6



1000 V<sub>CE</sub> = 10 V T<sub>A</sub> = 150°C T<sub>A</sub> = 150°C

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

Figure 3. DC Current Gain



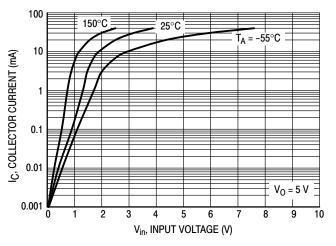


Figure 4. Output Capacitance

Figure 5. Output Current vs. Input Voltage

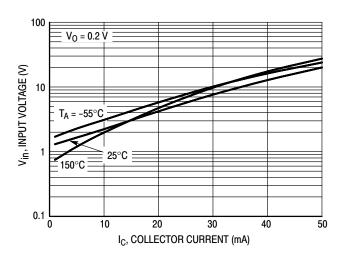


Figure 6. Input Voltage vs. Output Current

## TYPICAL CHARACTERISTICS – PNP TRANSISTOR MUN5312DW1, NSBC124EPDXV6

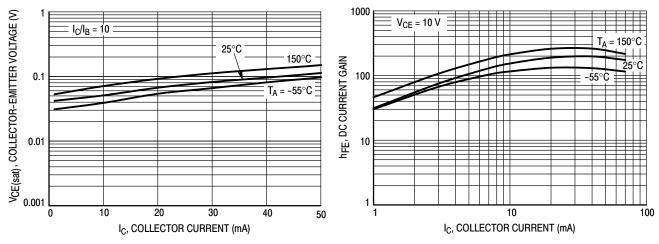


Figure 7. V<sub>CE(sat)</sub> vs. I<sub>C</sub>

Figure 8. DC Current Gain

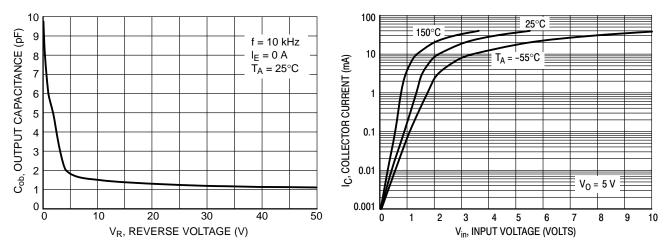


Figure 9. Output Capacitance

Figure 10. Output Current vs. Input Voltage

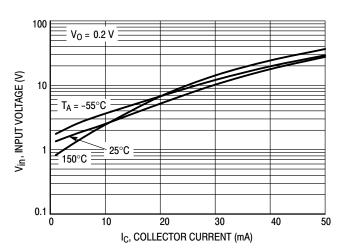


Figure 11. Input Voltage vs. Output Current

## TYPICAL CHARACTERISTICS – NPN TRANSISTOR NSBC124EPDP6

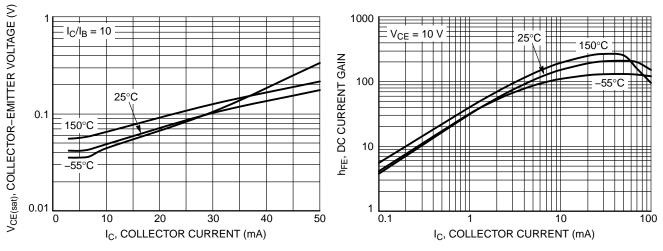


Figure 12. V<sub>CE(sat)</sub> vs. I<sub>C</sub>

Figure 13. DC Current Gain

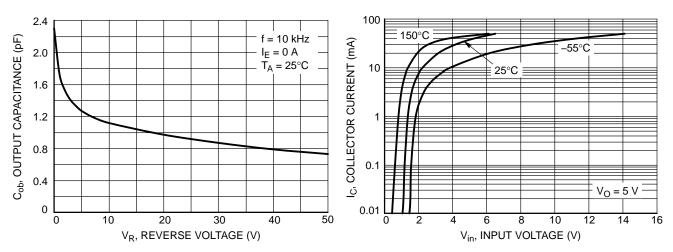


Figure 14. Output Capacitance

Figure 15. Output Current vs. Input Voltage

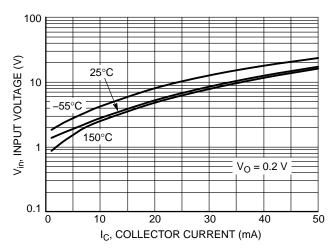


Figure 16. Input Voltage vs. Output Current

## TYPICAL CHARACTERISTICS – PNP TRANSISTOR NSBC124EPDP6

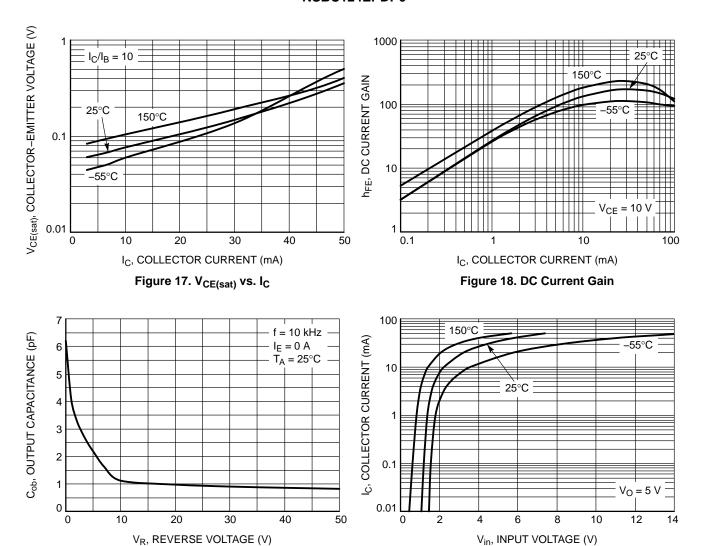


Figure 19. Output Capacitance

Figure 20. Output Current vs. Input Voltage

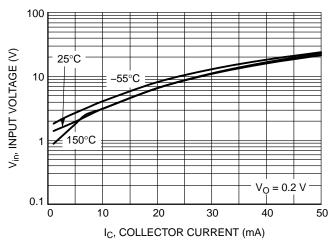


Figure 21. Input Voltage vs. Output Current



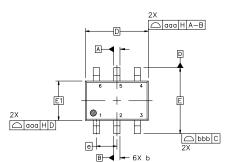
### **MECHANICAL CASE OUTLINE**

PACKAGE DIMENSIONS



### SC-88 2.00x1.25x0.90, 0.65P CASE 419B-02 **ISSUE Z**

**DATE 18 APR 2024** 



⊕ ddd M C A−B D

6X 0.66

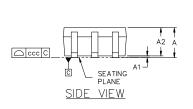
2.50

### NOTES:

- DIMENSIONING AND TOLERANCING CONFORM TO ASME Y14.5-2018.
- ALL DIMENSION ARE IN MILLIMETERS.
- 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.
  DATUMS A AND B ARE DETERMINED AT DATUM H.
- DIMENSIONS 6 AND c APPLY TO THE FLAT SECTION OF THE LEAD BETWEEN 0.08 AND 0.15 FROM THE TIP. 6.
- DIMENSION & 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.

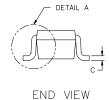
bbb

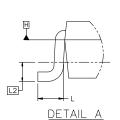
ccc ddd



6X 0.30 -

TOP VIEW





SCALE 2:1

	MILLIMETERS			
DIM	MIN.	NOM.	MAX.	
Α			1.10	
A1	0.00		0.10	
A2	0.70	0.90	1.00	
b	0.15	0.20	0.25	
С	0.08	0.15	0.22	
D	2.00 BSC			
E	2.10 BSC			
E1	1.25 BSC			
е	0.65 BSC			
L	0.26	0.36	0.46	
L2	0.15 BSC			
aaa	0.15			

0.30

0.10

0.10

### **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 MOUNTING FOOTPRINT\*

FOR ADDITIONAL INFORMATION ON OUR Pb-FREE STRATEGY AND SOLDERING DETAILS, PLEASE DOWNLOAD THE ONSEMI SOLDERING AND MOUNTING TECHNIQUES REFERENCE MANUAL, SOLDERRM/D.

### **STYLES ON PAGE 2**

DOCUMENT NUMBER:	98ASB42985B	Electronic versions are uncontrolled except when accessed directly from the Document Reposi Printed versions are uncontrolled except when stamped "CONTROLLED COPY" in red.	
DESCRIPTION:	SC-88 2.00x1.25x0.90, 0.65	5P	PAGE 1 OF 2

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### SC-88 2.00x1.25x0.90, 0.65P CASE 419B-02 ISSUE Z

**DATE 18 APR 2024** 

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 the Document Reposi Printed versions are uncontrolled except when stamped "CONTROLLED COPY" in red.	
DESCRIPTION:	SC-88 2.00x1.25x0.90, 0.69	5P	PAGE 2 OF 2

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### **MECHANICAL CASE OUTLINE**

PACKAGE DIMENSIONS



STYLE 1:

STYLE 4 PIN 1. COLLECTOR 2. COLLECTOR 3. BASE

PIN 1. EMITTER 1 2. BASE 1

3. COLLECTOR 2

6. COLLECTOR 1

4. EMITTER 2

5. BASE 2

4. EMITTER

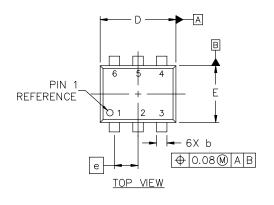
5. COLLECTOR 6. COLLECTOR

### SOT-563-6 1.60x1.20x0.55, 0.50P CASE 463A **ISSUE J**

**DATE 15 FEB 2024** 

#### NOTES:

- 1. DIMENSIONING AND TOLERANCING CONFORM TO ASME Y14.5-2018.
- ALL DIMENSION ARE IN MILLIMETERS.
- MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.



STYLE 2:

PIN 1. EMITTER 1

5. BASE 1 6. COLLECTOR 1

STYLE 5: PIN 1. CATHODE 2. CATHODE

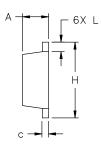
4. ANDDE 5. CATHODE

6. CATHODE

3. ANDDE

2. EMITTER 2 3. BASE 2

4. COLLECTOR 2



SIDE VIEW

STYLE 3:

PIN 1. CATHODE 1 2. CATHODE 1

STYLE 6: PIN 1. CATHODE 2. ANODE

3. CATHODE

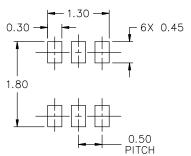
4. CATHODE 5. CATHODE

6. CATHODE

3. ANDDE/ANDDE 2 CATHODE 2

6. ANDDE/ANDDE 1

DIM	MILLIMETERS			
المللط	MIN.	N□M.	MAX.	
А	0.50	0.55	0.60	
b	0.17	0.22	0.27	
С	0.08	0.13	0.18	
D	1.50	1.60	1.70	
Е	1.10	1.20	1.30	
6	0.50 BSC			
Н	1.50	1.60	1.70	
L	0.10	0.20	0.30	



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.

#### STYLE 7: STYLE 8: STYLE 9 PIN 1. CATHODE PIN 1. DRAIN PIN 1. SOURCE 1 2. DRAIN 2. GATE 1

2. ANDDE
3. CATHODE
4. CATHODE 3. GATE 4. SOURCE 5. DRAIN 3. DRAIN 2 4. SOURCE 2 5. GATE 2 5. ANDDE CATHODE DRAIN DRAIN 1

STYLE 10: STYLE 11: PIN 1. CATHODE 1 PIN 1. EMITTER 2 2. N/C 3. CATHODE 2 2. BASE 2 3. COLLECTOR 1 4. ANDDE 2 EMITTER 1 BASE 5. N/C 5. BASE 1 6. COLLECTOR 2 6. AN□DE 1

### **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.

DOCUMENT NUMBER:	00,10,11,1202	Printed versions are uncontrolled except when stamped "CONTROLLED COPY" in red.	
DESCRIPTION:	SOT-563-6 1.60x1.20x0.55	5, 0.50P	PAGE 1 OF 1

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### **MECHANICAL CASE OUTLINE**





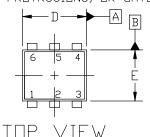
### SOT-963 1.00x1.00x0.37, 0.35P CASE 527AD **ISSUE F**

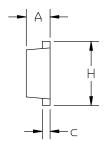
**DATE 20 FEB 2024** 

#### NOTES:

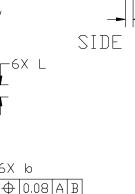
- DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 2018. 1.
- CONTROLLING DIMENSION: MILLIMETERS.
- MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.

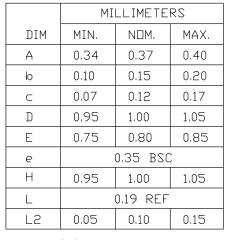
  DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH,
- PROTRUSIONS, OR GATE BURRS

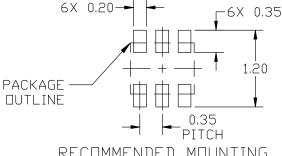




VIFW







### RECOMMENDED MOUNTING FOOTPRINT

\*For additional information on our Pb-Free strategy and soldering details, please download the  $\square N$  Semiconductor Soldering and Mounting Techniques Reference manual, SDLDERRM/D.

### BUTTUM VIEW

STYLE 1: PIN 1. EMITTER 1 2. BASE 1 3. COLLECTOR 2 4. EMITTER 2 5. BASE 2	STYLE 2: PIN 1. E 2. E 3. B 4. C 5. B
6. COLLECTOR 1	6. C
STYLE 4:	STYLE 5:

PIN 1. COLLECTOR 2. COLLECTOR

3. BASE 4. EMITTER

STYLE 7: PIN 1. CATHODE 2. ANODE 3. CATHODE 4. CATHODE

5. ANODE 6. CATHODE

2. N/C 3. CATHODE 2

4. ANODE 2

5. N/C 6. ANODE 1

STYLE 10: PIN 1. CATHODE 1

5 COLLECTOR

6. COLLECTOR

LE 2:	
N 1. EMITTER 1	
2. EMITTER2 3. BASE 2	
4. COLLECTOR 2	
5. BASE 1 6. COLLECTOR 1	
0. 002220.0	

PIN 1. CATHODE 2. CATHODE 3. ANODE 4. ANODE

STYLE 8: PIN 1. DRAIN 2. DRAIN

5. CATHODE 6. CATHODE

3. GATE 4. SOURCE

5. DRAIN 6. DRAIN

STYLE	3:
PIN 1	. CATHODE 1
2	. CATHODE 1
3	. ANODE/ANODE 2
4	. CATHODE 2
5	. CATHODE 2
6	. ANODE/ANODE 1

STYLE 6:					
PIN 1. CATHODE					
<ol><li>ANODE</li></ol>					
<ol><li>CATHODE</li></ol>					
<ol><li>CATHODE</li></ol>					
<ol><li>CATHODE</li></ol>					

0. CATHODE
STYLE 9:
PIN 1. SOURCE 1
<ol><li>GATE 1</li></ol>
<ol><li>DRAIN 2</li></ol>
<ol><li>SOURCE 2</li></ol>
5. GATE 2
6 DRAIN 1

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



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

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