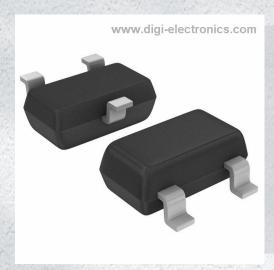


MUN2132T1G Datasheet



https://www.DiGi-Electronics.com

DiGi Electronics Part Number M

MUN2132T1G-DG

Manufacturer

onsemi

Manufacturer Product Number

MUN2132T1G

Description

TRANS PREBIAS PNP 50V 0.1A SC59

Detailed Description

Pre-Biased Bipolar Transistor (BJT) PNP - Pre-Biase d 50 V 100 mA 230 mW Surface Mount SC-59



Tel: +00 852-30501935

RFQ Email: Info@DiGi-Electronics.com

DiGi is a global authorized distributor of electronic components.



Purchase and inquiry

Manufacturer Product Number:	Manufacturer:
MUN2132T1G	onsemi
Series:	Product Status:
	Active
Transistor Type:	Current - Collector (Ic) (Max):
PNP - Pre-Biased	100 mA
Voltage - Collector Emitter Breakdown (Max):	Resistor - Base (R1):
50 V	4.7 kOhms
Resistor - Emitter Base (R2):	DC Current Gain (hFE) (Min) @ Ic, Vce:
4.7 kOhms	15 @ 5mA, 10V
Vce Saturation (Max) @ lb, lc:	Current - Collector Cutoff (Max):
250mV @ 1mA, 10mA	500nA
Power - Max:	Mounting Type:
230 mW	Surface Mount
Package / Case:	Supplier Device Package:
TO-236-3, SC-59, SOT-23-3	SC-59
Base Product Number:	
MUN2132	

Environmental & Export classification

RoHS Status:	Moisture Sensitivity Level (MSL):
ROHS3 Compliant	1 (Unlimited)
REACH Status:	ECCN:
REACH Unaffected	EAR99
HTSUS:	
8541.21.0095	

Digital Transistors (BRT) R1 = 4.7 k Ω , R2 = 4.7 k Ω

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 baseemitter 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 $(T_A = 25^{\circ}C)$

Rating	Symbol	Max	Unit
Collector-Base Voltage	V_{CBO}	50	Vdc
Collector–Emitter Voltage	V_{CEO}	50	Vdc
Collector Current – Continuous	I _C	100	mAdc
Input Forward Voltage	V _{IN(fwd)}	30	Vdc
Input Reverse Voltage	V _{IN(rev)}	10	Vdc

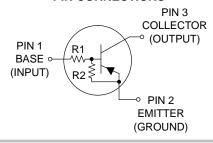
Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

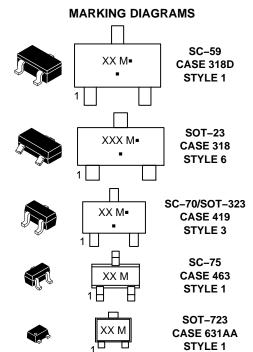


ON Semiconductor®

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PIN CONNECTIONS





X ML 1 XXX = Specific Device Code

= Date Code* M = Pb-Free Package

(Note: Microdot may be in either location)

*Date Code orientation may vary depending upon manufacturing location.

ORDERING INFORMATION

See detailed ordering, marking, and shipping information in the package dimensions section on page 2 of this data sheet.

SOT-1123

CASE 524AA STYLE 1

Table 1. ORDERING INFORMATION

Device	Part Marking	Package	Shipping [†]
MUN2132T1G, NSVMUN2132T1G*	6J	SC-59 (Pb-Free)	3000 / Tape & Reel
MMUN2132LT1G, NSVMMUN2132LT1G*	A6J	SOT-23 (Pb-Free)	3000 / Tape & Reel
MUN5132T1G, NSVMUN5132T1G*	6J	SC-70/SOT-323 (Pb-Free)	3000 / Tape & Reel
DTA143EET1G	43	SC-75 (Pb-Free)	3000 / Tape & Reel
DTA143EM3T5G, NSVDTA143EM3T5G*	6J	SOT-723 (Pb-Free)	8000 / Tape & Reel
NSBA143EF3T5G	A (90°)*	SOT-1123 (Pb-Free)	8000 / 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.

^{**} (xx°) = Degree rotation in the clockwise direction.

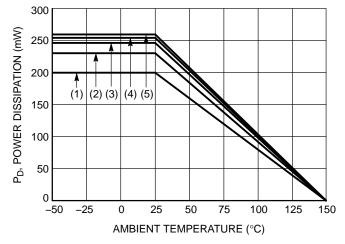


Figure 1. Derating Curve

- (1) SC-75 and SC-70/SOT-323; Minimum Pad
- (2) SC-59; Minimum Pad
- (3) SOT-23; Minimum Pad
- (4) SOT-1123; 100 mm², 1 oz. copper trace
- (5) SOT-723; Minimum Pad

^{*}S and NSV Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable.

Table 2. THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
THERMAL CHARACTERISTICS (SC-59) (MUN2132)			
Total Device Dissipation $T_A = 25^{\circ}C \qquad \text{(Note 1)}$ (Note 2) Derate above 25°C \text{(Note 1)} (Note 2)	PD	230 338 1.8 2.7	mW mW/°C
Thermal Resistance, (Note 1) Junction to Ambient (Note 2)	$R_{ heta JA}$	540 370	°C/W
Thermal Resistance, (Note 1) Junction to Lead (Note 2)	$R_{ hetaJL}$	264 287	°C/W
Junction and Storage Temperature Range	T _J , T _{stg}	-55 to +150	°C
THERMAL CHARACTERISTICS (SOT-23) (MMUN2132	L)	1	<u>I</u>
Total Device Dissipation $T_A = 25^{\circ}C \qquad \text{(Note 1)}$ (Note 2) Derate above 25 $^{\circ}C \qquad \text{(Note 1)}$ (Note 2)	P _D	246 400 2.0 3.2	mW mW/°C
Thermal Resistance, (Note 1) Junction to Ambient (Note 2)	$R_{ heta JA}$	508 311	°C/W
Thermal Resistance, (Note 1) Junction to Lead (Note 2)	$R_{ heta JL}$	174 208	°C/W
Junction and Storage Temperature Range	T _J , T _{stg}	-55 to +150	°C
THERMAL CHARACTERISTICS (SC-70/SOT-323) (MU		1	<u>I</u>
Total Device Dissipation T _A = 25°C (Note 1) (Note 2) Derate above 25°C (Note 1) (Note 2)	P _D	202 310 1.6 2.5	mW mW/°C
Thermal Resistance, (Note 1) Junction to Ambient (Note 2)	$R_{ heta JA}$	618 403	°C/W
Thermal Resistance, (Note 1) Junction to Lead (Note 2)	$R_{ heta JL}$	280 332	°C/W
Junction and Storage Temperature Range	T _J , T _{stg}	-55 to +150	°C
THERMAL CHARACTERISTICS (SC-75) (DTA143EE)	•		•
Total Device Dissipation $T_A = 25^{\circ}C \qquad \text{(Note 1)}$ (Note 2) Derate above $25^{\circ}C \qquad \text{(Note 1)}$ (Note 2)	P _D	200 300 1.6 2.4	mW mW/°C
Thermal Resistance, (Note 1) Junction to Ambient (Note 2)	$R_{ heta JA}$	600 400	°C/W
Junction and Storage Temperature Range	T _J , T _{stg}	-55 to +150	°C
THERMAL CHARACTERISTICS (SOT-723) (DTA143E	13)		
Total Device Dissipation $T_A = 25^{\circ}C \qquad \text{(Note 1)}$ (Note 2) Derate above $25^{\circ}C \qquad \text{(Note 1)}$ (Note 2)	PD	260 600 2.0 4.8	mW mW/°C
Thermal Resistance, (Note 1) Junction to Ambient (Note 2)	$R_{ heta JA}$	480 205	°C/W
Junction and Storage Temperature Range	T _J , T _{stg}	-55 to +150	°C

- 1. FR-4 @ Minimum Pad.
- 2. FR-4 @ 1.0 x 1.0 Inch Pad.
- FR-4 @ 100 mm², 1 oz. copper traces, still air.
 FR-4 @ 500 mm², 1 oz. copper traces, still air.

Table 2. THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
THERMAL CHARACTERISTICS (SOT-1123) (NSBA143EF3)		-	
Total Device Dissipation $T_A = 25^{\circ}C \qquad \text{(Note 3)}$ (Note 4) Derate above 25°C \text{(Note 3)} (Note 4)	P _D	254 297 2.0 2.4	mW mW/°C
Thermal Resistance, (Note 3) Junction to Ambient (Note 4)	$R_{ heta JA}$	493 421	°C/W
Thermal Resistance, Junction to Lead (Note 3)	R _θ JL	193	°C/W
Junction and Storage Temperature Range	T _J , T _{stg}	-55 to +150	°C

- 1. FR-4 @ Minimum Pad.
- 2. FR-4 @ 1.0 x 1.0 Inch Pad.
- FR-4 @ 100 mm², 1 oz. copper traces, still air.
 FR-4 @ 500 mm², 1 oz. copper traces, still air.

Table 3. ELECTRICAL CHARACTERISTICS (T_A = 25°C, unless otherwise noted)

Characteristic	Symbol	Min	Тур	Max	Unit
OFF CHARACTERISTICS	•	•	-	•	
Collector–Base Cutoff Current $(V_{CB} = 50 \text{ V}, I_E = 0)$	Ісво	_	-	100	nAdc
Collector–Emitter Cutoff Current (V _{CE} = 50 V, I _B = 0)	I _{CEO}	_	_	500	nAdc
Emitter-Base Cutoff Current (V _{EB} = 6.0 V, I _C = 0)	I _{EBO}	_	_	1.5	mAdc
Collector–Base Breakdown Voltage $(I_C = 10 \mu A, I_E = 0)$	V _(BR) CBO	50	_	-	Vdc
Collector–Emitter Breakdown Voltage (Note 5) (I _C = 2.0 mA, I _B = 0)	V _(BR) CEO	50	_	-	Vdc
ON CHARACTERISTICS	<u>.</u>				
DC Current Gain (Note 5) (I _C = 5.0 mA, V _{CE} = 10 V)	h _{FE}	15	27	_	
Collector–Emitter Saturation Voltage (Note 5) (I _C = 10 mA, I _B = 1.0 mA)	V _{CE(sat)}	_	_	0.25	Vdc
Input Voltage (off) $(V_{CE} = 5.0 \text{ V}, I_C = 100 \mu\text{A})$	V _{i(off)}	_	1.2	0.5	Vdc
Input Voltage (on) $(V_{CE} = 0.3 \text{ V}, I_{C} = 20 \text{ mA})$	V _{i(on)}	3.0	2.4	-	Vdc
Output Voltage (on) (V _{CC} = 5.0 V, V _B = 2.5 V, R _L = 1.0 k Ω)	V _{OL}	_	-	0.2	Vdc
Output Voltage (off) ($V_{CC} = 5.0 \text{ V}, V_B = 0.25 \text{ V}, R_L = 1.0 \text{ k}\Omega$)	V _{OH}	4.9	_	_	Vdc
Input Resistor	R1	3.3	4.7	6.1	kΩ
Resistor Ratio	R ₁ /R ₂	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. 5. Pulsed Condition: Pulse Width = 300 msec, Duty Cycle ≤ 2%.

TYPICAL CHARACTERISTICS MUN2132, MMUN2132L, MUN5132, DTA143EE, DTA143EM3

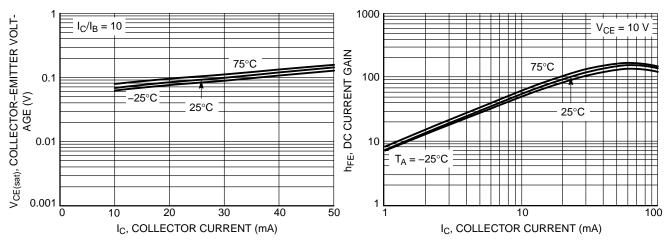


Figure 2. V_{CE(sat)} vs. I_C

Figure 3. DC Current Gain

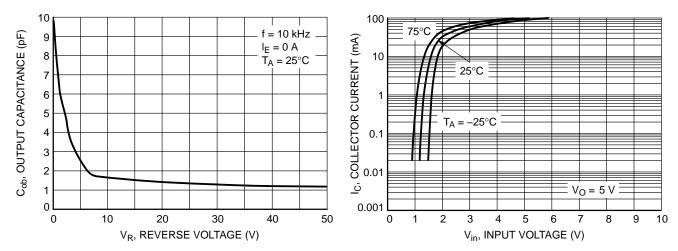


Figure 4. Output Capacitance

Figure 5. Output Current vs. Input Voltage

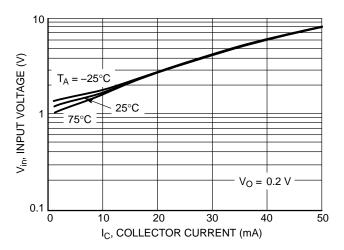


Figure 6. Input Voltage vs. Output Current

TYPICAL CHARACTERISTICS - NSBA143EF3

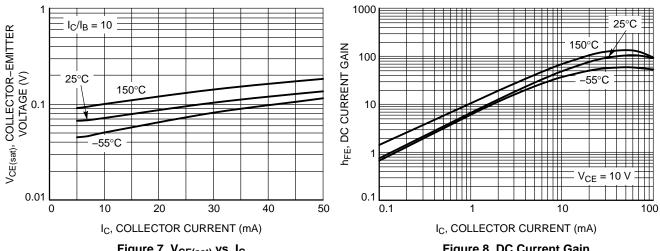


Figure 7. V_{CE(sat)} vs. I_C

Figure 8. DC Current Gain

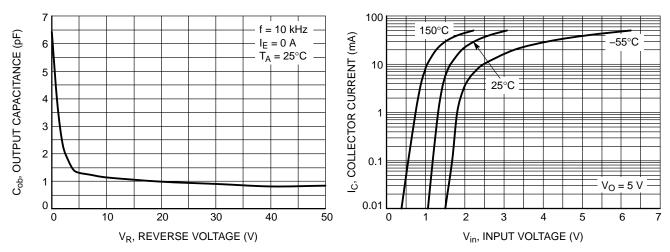


Figure 9. Output Capacitance

Figure 10. Output Current vs. Input Voltage

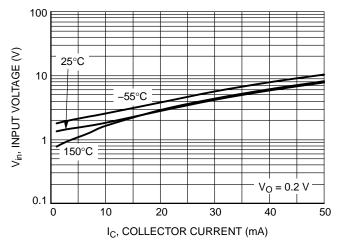


Figure 11. Input Voltage vs. Output Current



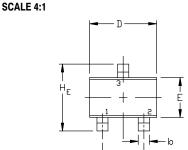
MECHANICAL CASE OUTLINE

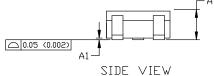
PACKAGE DIMENSIONS

SC-70 (SOT-323) **CASE 419** ISSUE R

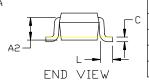
DATE 11 OCT 2022







TOP VIEW



NOTES:

- 1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1982.
- 2. CONTROLLING DIMENSION: INCH

	MILLIMETERS				INCHES	
DIM	MIN.	N□M.	MAX.	MIN.	N□M.	MAX.
Α	0.80	0.90	1.00	0.032	0.035	0.040
A1	0.00	0.05	0.10	0.000	0.002	0.004
A2	0.70 REF				0.028 BS	C
b	0.30	0.35	0.40	0.012	0.014	0.016
C	0.10	0.18	0.25	0.004	0.007	0.010
D	1.80	2.00	2.20	0.071	0.080	0.087
E	1.15	1.24	1.35	0.045	0.049	0.053
е	1.20	1.30	1.40	0.047	0.051	0.055
e1	0.65 BSC				0.026 BS	C
L	0.20	0.38	0.56	0.008	0.015	0.022
HE	2.00	2.10	2.40	0.079	0.083	0.095



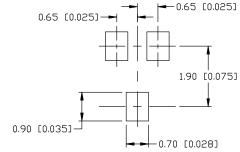


XX = Specific Device Code

М = 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. Some products may not follow the Generic Marking.



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

SOLDERING FOOTPRINT

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

DOCUMENT NUMBER:	98ASB42819B	Electronic versions are uncontrolled except when accessed directly from Printed versions are uncontrolled except when stamped "CONTROLLED (
DESCRIPTION:	SC-70 (SOT-323)		PAGE 1 OF 1

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MECHANICAL CASE OUTLINE

PACKAGE DIMENSIONS

SC75-3 1.60x0.80x0.80, 1.00P

CASE 463 ISSUE H

DATE 01 FEB 2024

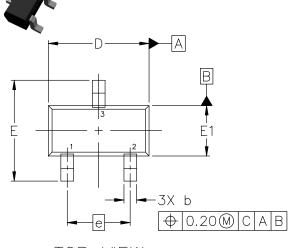
NOTES:

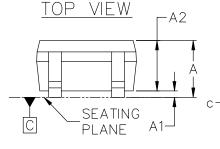
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- ALL DIMENSION ARE IN MILLIMETERS.

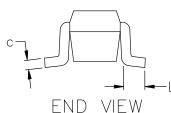
DIM	М	MILLIMETERS			
DIIVI	MIN.	NOM.	MAX.		
А	0.70	0.80	0.90		
A1	0.00	0.05	0.10		
A2	0.80 REF.				
Ь	0.15	0.20	0.30		
С	0.10	0.15	0.25		
D	1.55	1.60	1.65		
E	1.50	1.60	1.70		
E1	0.70	0.80	0.90		
е	1.00 BSC				
L	0.10	0.15	0.20		

-0.356

0.787







SIDE VIEW

GENERIC MARKING DIAGRAM*



XX = Specific Device Code

Μ = Date Code = Pb-Free Package

*This information is generic. Please refer to device data sheet for actual part marking. av ay

Pb-Free indicator, "G" or microdot "■", ma
or may not be present. Some products ma
not follow the Generic Marking.
•

STYLE 1: PIN 1. BASE 2. EMITTER 3. COLLECTOR

STYLE 4:

STYLE 2: PIN 1. ANODE 2. N/C 3. CATHODE

STYLE 5:

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

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

1.000

RECOMMENDED MOUNTING FOOTPRINT*

1.803

0.508

PIN 1. CATHODE	PIN 1. GATE
CATHODE	2. SOURCE
ANODE	3. DRAIN

DOCUMENT NUMBER:

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98ASB15184C **DESCRIPTION:** SC75-3 1.60x0.80x0.80, 1.00P

PAGE 1 OF 1

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ТПР

MECHANICAL CASE OUTLINE

PACKAGE DIMENSIONS

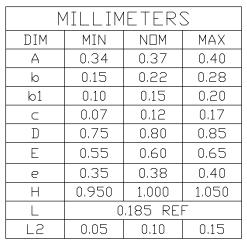


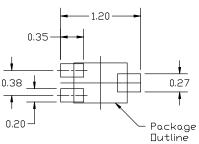
SOT-1123 0.80x0.60x0.37, 0.35P CASE 524AA ISSUE D

DATE 18 JAN 2024

NOTES:

- 1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 2018.
- CONTROLLING DIMENSION: MILLIMETERS. 2.
- MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
- DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS.



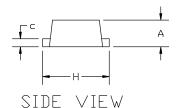


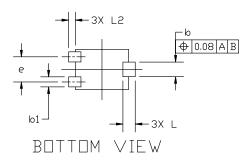
RECOMMENDED MOUNTING FOOTPRINT

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

В

VIEW





GENERIC MARKING DIAGRAM*



= Specific Device Code = Date 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.

STYLE 1:	STY
PIN 1. BASE	PIN
EMITTER	
COLLECTOR	

'LE 2: N 1. ANODE N/C
 CATHODE STYLE 3: PIN 1. ANODE 2. ANODE 3. CATHODE

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

STYLE 5: PIN 1. GATE 2. SOURCE

DOCUMENT NUMBER:	98AON23134D	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-1123 0.80x0.60x0.37, 0.35P		PAGE 1 OF 1

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MECHANICAL CASE OUTLINE

PACKAGE DIMENSIONS

MILLIMETERS

 $N\square M$.

0.50

0.21

0.31

0.12

1.20

0.80

0.40 BSC

1.20

0.29 REF



SOT-723 1.20x0.80x0.50, 0.40P CASE 631AA ISSUE E

DATE 24 JAN 2024

MAX.

0.55

0.27

0.37

0.17

1.25

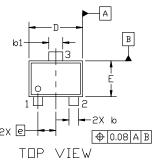
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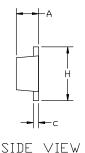
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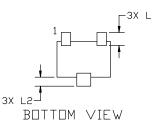
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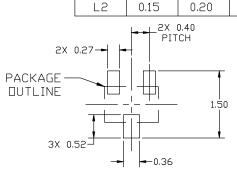
NOTES:

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









DIM

Α

b

b1

 \subset D

Ε

е Н

L

MIN.

0.45

0.15

0.25

0.07

1.15

0.75

1.15

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.

GENERIC MARKING DIAGRAM*



XX = Specific Device Code = Date 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.

STYLE 1: STYLE 2: STYLE 3: STYLE 4: STYLE 5: PIN 1. GATE 2. SOURCE PIN 1. BASE PIN 1. ANODE PIN 1. ANODE PIN 1. CATHODE 2 FMITTER 2 CATHODE 2 N/C 2. ANODE 3. COLLECTOR 3. CATHODE 3. CATHODE 3. DRAIN

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DESCRIPTION:	SOT-723 1.20x0.80x0.50, 0.40P		PAGE 1 OF 1

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