

	$V_{CEO}$	50	Vdc
Collector Current- Continuous	$I_C$	100	mAdc
Input Forward Voltage	$V_{IN(fwd)}$	40	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.



See detailed ordering, marking, and shipping information in



**Table 2. THERMAL CHARACTERISTICS**

Characteristic			
<b>THERMAL CHARACTERISTICS (SC-59) (MUN2113)</b>			
Total Device Dissipation T <sub>A</sub> = 25°C (Note 1) (Note 2) Derate above 25°C (Note 1) (Note 2)			
Thermal Resistance, Junction to Ambient		(Note 1)	(Note 2)
Thermal Resistance, Junction to Lead		(Note 1)	(Note 2)
Junction and Storage Temperature Range			
<b>THERMAL CHARACTERISTICS (SOT-23) (MMUN2113L)</b>			
Total Device Dissipation T <sub>A</sub> = 25°C (Note 1) (Note 2) Derate above 25°C (Note 1) (Note 2)			
Thermal Resistance, Junction to Ambient		(Note 1)	(Note 2)
Thermal Resistance, Junction to Lead		(Note 1)	(Note 2)
Junction and Storage Temperature Range			
<b>THERMAL CHARACTERISTICS (SC-70/SOT-323) (MUN5113)</b>			
Total Device Dissipation T <sub>A</sub> = 25°C (Note 1) (Note 2) Derate above 25°C (Note 1) (Note 2)			
Thermal Resistance, Junction to Ambient		(Note 1)	(Note 2)
Thermal Resistance, Junction to Lead		(Note 1)	(Note 2)
Junction and Storage Temperature Range			
<b>THERMAL CHARACTERISTICS (SC-75) (DTA144EE)</b>			
Thermal Resistance, Junction to Ambient		(Note 1) (Note 2)	R <sub>θJA</sub> 600 400 °C/W
Junction and Storage Temperature Range		T <sub>J</sub> , T <sub>stg</sub>	-55 to +150 °C
<b>THERMAL CHARACTERISTICS (SOT</b>			

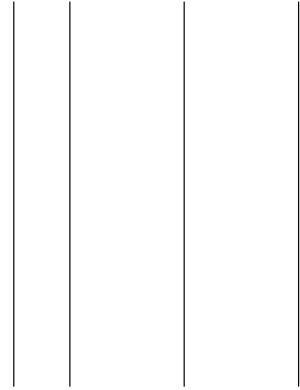
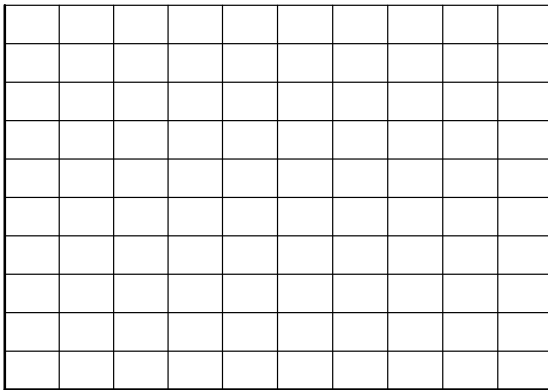
**MUN2113, MMUN2113L, MUN5113, DTA144EE, DTA144EM3, NSBA144EF3**

**Table 2. THERMAL CHARACTERISTICS**

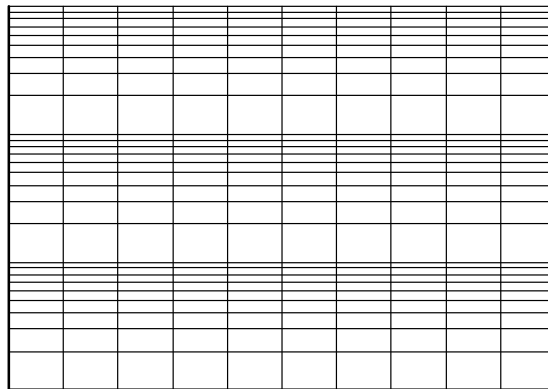
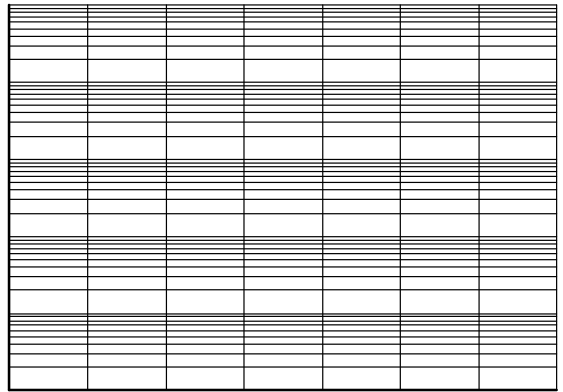
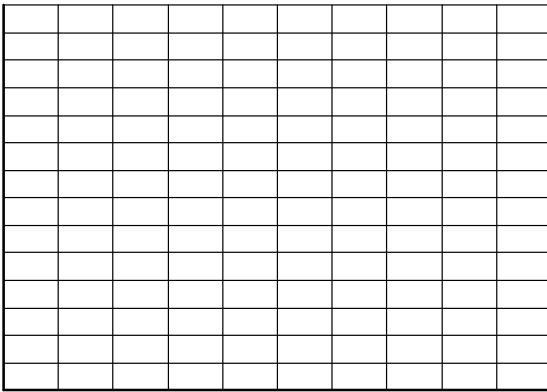
Characteristic	Symbol	Max	Unit
<b>THERMAL CHARACTERISTICS (SOT-1123) (NSBA144EF3)</b>			
Total Device Dissipation T <sub>A</sub> = 25°C (Note 3) (Note 4)	P <sub>D</sub>	254	mW
Derate above 25°C (Note 3) (Note 4)		297 2.0 2.4	mW/°C
Thermal Resistance, Junction to Ambient (Note 3) (Note 4)	R <sub>θJA</sub>	493	°C/W
Thermal Resistance, Junction to Lead (Note 3)		421	

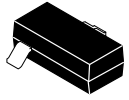
TYPICAL CHARACTERISTICS  
MUN2113, MMUN2113L, MUN5113, DTA144EE, DTA144EM3

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



TYPICAL CHARACTERISTICS – NSBA144EF3





SCALE 4:1

SOT 23 (TO 236) 2.90x1.30x1.00 1.90P  
CASE 318  
ISSUE AU

DATE 14 AUG 2024

**SOT 23 (TO 236) 2.90x1.30x1.00 1.90P**  
**CASE 318**  
**ISSUE AU**

DATE 14 AUG 2024

STYLE 6:  
PIN 1. BASE  
2. EMITTER  
3. COLLECTOR

STYLE 7:  
PIN 1. EMITTER  
2. BASE  
3. COLLECTOR

STYLE 8:  
PIN 1. ANODE  
2. NO CONNECTION  
3. CATHODE

STYLE 9:  
PIN 1. ANODE  
2. ANODE  
3. CATHODE

STYLE 10:  
PIN 1. DRAIN  
2. SOURCE  
3. GATE

STYLE 11:  
PIN 1. ANODE  
2. CATHODE  
3. CATHODE-ANODE

STYLE 12:  
PIN 1. CATHODE  
2. CATHODE  
3. ANODE

STYLE 13:  
PIN 1. SOURCE  
2. DRAIN  
3. GATE

STYLE 14:  
PIN 1. CATHODE  
2. GATE  
3. ANODE

STYLE 15:  
PIN 1. GATE  
2. CATHODE  
3. ANODE

STYLE 16:  
PIN 1. ANODE  
2. CATHODE  
3. CATHODE

STYLE 17:  
PIN 1. NO CONNECTION  
2. ANODE  
3. CATHODE

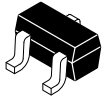
STYLE 18:  
PIN 1. NO CONNECTION  
2. CATHODE  
3. ANODE

STYLE 19:  
PIN 1. CATHODE  
2. ANODE  
3. CATHODE-ANODE

STYLE 22:  
PIN 1. RETURN  
2. OUTPUT  
3. INPUT

STYLE 23:  
PIN 1. ANODE  
2. ANODE  
3. CATHODE  
3.



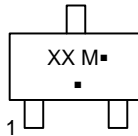


SCALE 4:1

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

DATE 11 OCT 2022

**GENERIC  
MARKING DIAGRAM**



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

\*This information is generic. Please refer to device data sheet for actual part marking.  
Pb-

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:  
PIN 1. EMITTER  
2. BASE  
3. COLLECTOR

STYLE 7:  
PIN 1. BASE  
2. EMITTER  
3. COLLECTOR

STYLE 8:  
PIN 1. GATE  
2. SOURCE  
3. DRAIN

STYLE 9:  
PIN 1. ANODE  
2. CATHODE  
3. CATHODE-ANODE

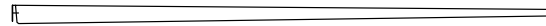
STYLE 10:  
PIN 1. CATHODE  
2. ANODE  
3. ANODE-CATHODE

STYLE 11:  
PIN 1. CATHODE  
2. CATHODE  
3. CATHODE



-

RECOMMEND



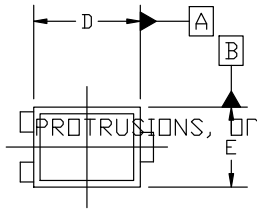


**SOT-1123 0.80x0.60x0.37, 0.35P**  
**CASE 524AA**  
**ISSUE D**

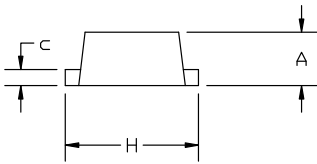
DATE 18 JAN 2024

NOTES:

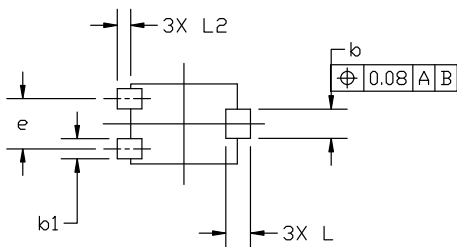
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 2018.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. MAXIMUM LEAD THICKNESS, ASH,



TOP VIEW



SIDE VIEW

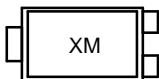


BOTTOM VIEW

← GATE BURRS.

MILLIMETERS			
DIM	MIN	NOM	MAX
A	0.34	0.37	0.40
b	0.15	0.22	0.2
			5
e	0.35	0.38	0.40
H	0.950	1.000	1.050
L	0.185 REF		
L2	0.05	0.10	0.15

**GENERIC MARKING DIAGRAM\***



- X = Specific Device Code
- M = Date Code

RECOMMENDED MOUNTING FOOTPRINT

\*

\*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:  
 PIN 1. BASE  
 2. EMITTER  
 3. COLLECTOR

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

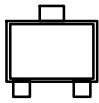
STYLE 3:  
 PIN 1. ANODE  
 2. ANODE  
 3. CATHODE

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

STYLE 5:  
 PIN 1. GATE  
 2. SOURCE  
 3. DRAIN

SOT-723 1.20x0.80x0.50, 0.40P

GENERIC  
MARKING



**onsemi**, **onsemi**, and other names, marks, and brands are registered and/or common law trademarks of Semiconductor Components Industries, LLC dba "**onsemi**" or its affiliates and/or subsidiaries in the United States and/or other countries. **onsemi** owns the rights to a number of patents, trademarks, copyrights, trade secrets, and other intellectual property. A listing of **onsemi**'s product/patent coverage may be accessed at [www.onsemi.com/site/pdf/Patent-Marking.pdf](http://www.onsemi.com/site/pdf/Patent-Marking.pdf). **onsemi** reserves the right to make changes at any time to any products or information herein, without notice. The information herein is provided "as-is" and **onsemi** makes no warranty, representation or guarantee regarding the accuracy of the information, product features, availability, functionality, or suitability of its products for any particular purpose, nor does **onsemi** assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. Buyer is responsible for its products and applications using **onsemi**

---

---