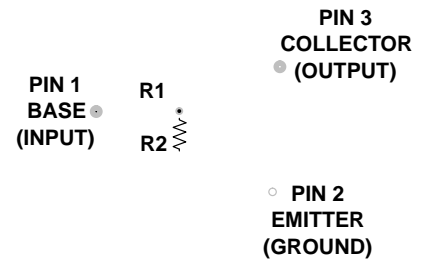
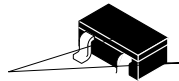




PIN CONNECTIONS



MARKING DIAGRAMS



SC-75
CASE 463
STYLE 1



XXX = 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.

ORDERING INFORMATION

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

MUN2231, MMUN2231L, MUN5231, DTC123EE, DTC123EM3, NSBC123EF3

Table 1. ORDERING INFORMATION

| Device | Part Marking | Package | Shipping† |
|------------|--------------|--------------------|-----------|
| MUN2231T1G | 8H | SC-59 (Pb-Free) | |

MUN2231, MMUN2231L, MUN5231, DTC123EE, DTC123EM3, NSBC123EF3

Table 2. THERMAL CHARACTERISTICS

| Characteristic | Symbol | Max | Unit |
|---|--|---------------------------------------|--------------------------------|
| THERMAL CHARACTERISTICS (SC-59) (MUN2231) | | | |
| Total Device Dissipation $T_A = 25^\circ\text{C}$ Derate above 25°C | (Note 1) (Note 2) (Note 1) (Note 2) | P_D 230 338 1.8 2.7 | mW mW/ $^\circ\text{C}$ |
| Thermal Resistance, Junction to Ambient | (Note 1) (Note 2) | $R_{\theta JA}$ 540 370 | $^\circ\text{C/W}$ |
| Thermal Resistance, Junction to Lead | (Note 1) (Note 2) | $R_{\theta JL}$ 264 287 | $^\circ\text{C/W}$ |
| Junction and Storage Temperature Range | T_J, T_{stg} | -55 to +150 | $^\circ\text{C}$ |
| THERMAL CHARACTERISTICS (SOT-23) (MMUN2231L) | | | |
| Total Device Dissipation $T_A = 25^\circ\text{C}$ Derate above 25°C | (Note 1) (Note 2) (Note 1) (Note 2) | P_D 246 400 2.0 3.2 | mW mW/ $^\circ\text{C}$ |
| Thermal Resistance, Junction to Ambient | (Note 1) (Note 2) | $R_{\theta JA}$ 508 311 | $^\circ\text{C/W}$ |
| Thermal Resistance, Junction to Lead | (Note 1) (Note 2) | $R_{\theta JL}$ 174 208 | $^\circ\text{C/W}$ |
| Junction and Storage Temperature Range | T_J, T_{stg} | -55 to +150 | $^\circ\text{C}$ |
| THERMAL CHARACTERISTICS (SC-70/SOT-323) (MUN5231) | | | |
| Total Device Dissipation $T_A = 25^\circ\text{C}$ Derate above 25°C | (Note 1) (Note 2) (Note 1) (Note 2) | P_D 202 310 1.6 2.5 | mW mW/ $^\circ\text{C}$ |
| Thermal Resistance, Junction to Ambient | (Note 1) (Note 2) | $R_{\theta JA}$ 618 403 | $^\circ\text{C/W}$ |
| Thermal Resistance, Junction to Lead | (Note 1) (Note 2) | $R_{\theta JL}$ 280 332 | $^\circ\text{C/W}$ |
| Junction and Storage Temperature Range | T_J, T_{stg} | -55 to +150 | $^\circ\text{C}$ |
| THERMAL CHARACTERISTICS (SC-75) (DTC123EE) | | | |
| Total Device Dissipation $T_A = 25^\circ\text{C}$ Derate above 25°C | (Note 1) (Note 2) (Note 1) (Note 2) | P_D 200 300 1.6 2.4 | mW mW/ $^\circ\text{C}$ |
| Thermal Resistance, Junction to Ambient | (Note 1) (Note 2) | $R_{\theta JA}$ 600 400 | $^\circ\text{C/W}$ |
| Junction and Storage Temperature Range | T_J, T_{stg} | -55 to +150 | $^\circ\text{C}$ |
| THERMAL CHARACTERISTICS (SOT-723) (DTC123EM3) | | | |
| Total Device Dissipation $T_A = 25^\circ\text{C}$ Derate above 25°C | (Note 1) (Note 2) (Note 1) (Note 2) | P_D 260 600 2.0 4.8 | mW mW/ $^\circ\text{C}$ |
| Thermal Resistance, Junction to Ambient | (Note 1) (Note 2) | $R_{\theta JA}$ 480 205 | $^\circ\text{C/W}$ |
| Junction and Storage Temperature Range | T_J, T_{stg} | -55 to +150 | $^\circ\text{C}$ |

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

MUN2231, MMUN2231L, MUN5231, DTC123EE, DTC123EM3, NSBC123EF3

Table 2. THERMAL CHARACTERISTICS

| Characteristic | Symbol | Max | Unit |
|---|-----------------|--------------------------|----------------------------|
| THERMAL CHARACTERISTICS (SOT-1123) (NSBC123EF3) | | | |
| Total Device Dissipation $T_A = 25^\circ\text{C}$ Derate above 25°C | P_D | 254 297 2.0 2.4 | mW mW/ $^\circ\text{C}$ |
| Thermal Resistance, Junction to Ambient | $R_{\theta JA}$ | 493 421 | $^\circ\text{C}/\text{W}$ |
| Thermal Resistance, Junction to Lead | $R_{\theta JL}$ | 193 | $^\circ\text{C}/\text{W}$ |
| Junction and Storage Temperature Range | T_J, T_{stg} | | |

TYPICAL CHARACTERISTICS
 MUN2231, MMUN2231L, MUN5231, DTC123EE, DTC123EF, NSBC123EF3

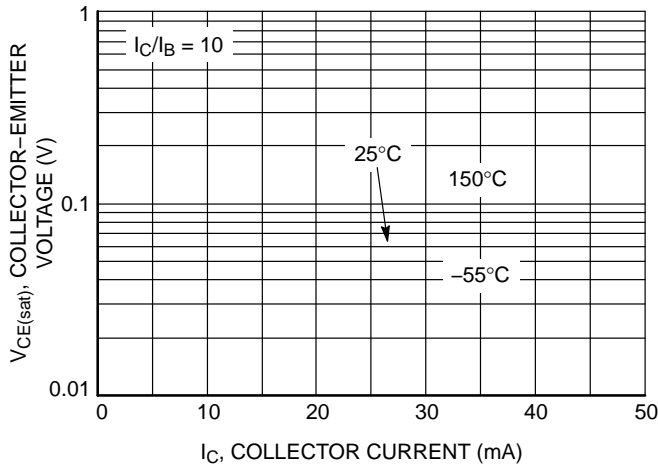


Figure 2. $V_{CE(sat)}$ vs. I_C

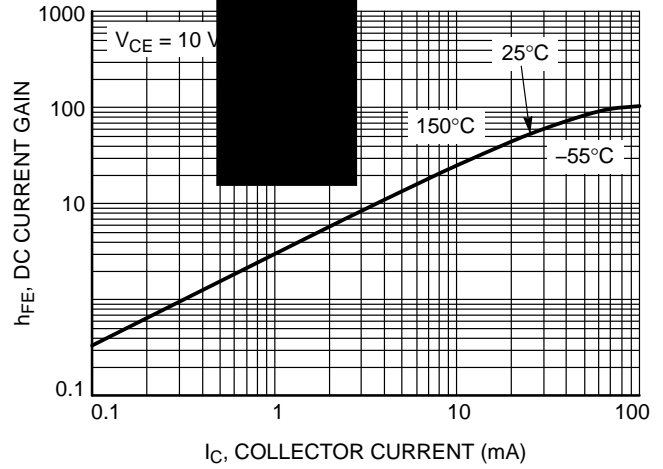


Figure 3. DC Current Gain

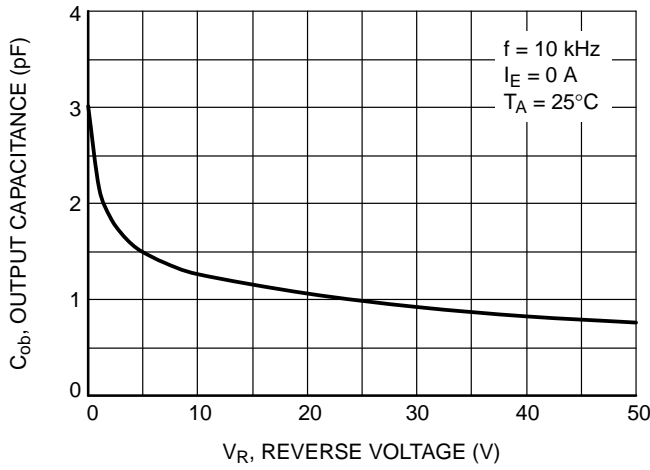


Figure 4. Output Capacitance

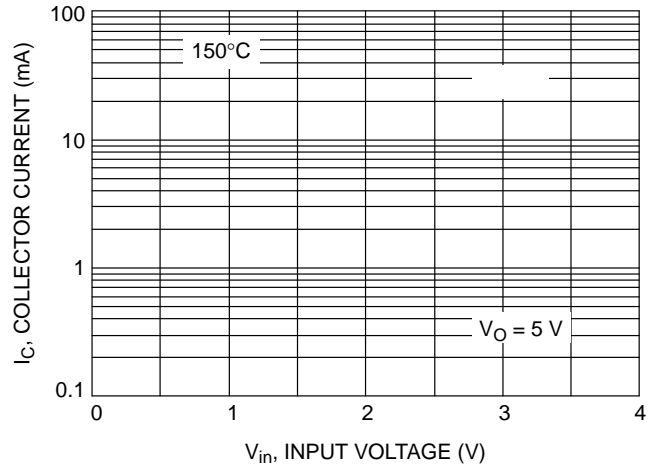


Figure 5. Output Current vs. Input Voltage

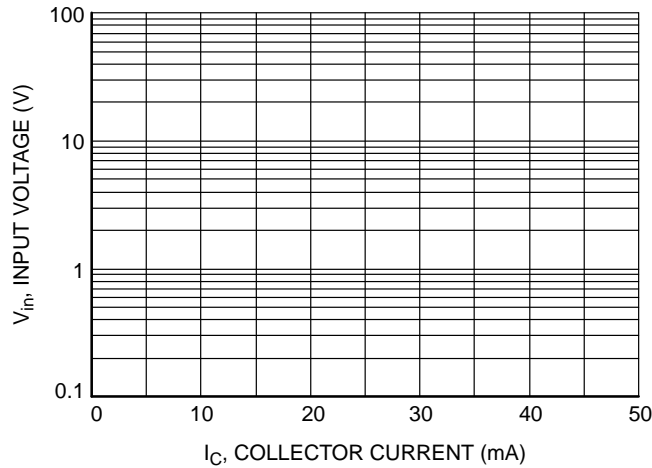
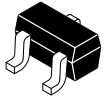


Figure 6. Input Voltage vs. Output Current

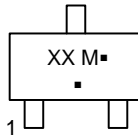


SCALE 4:1

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

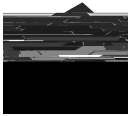
STYLE 11:
PIN 1. CATHODE
2. CATHODE
3. CATHODE



-

RECOMMEND



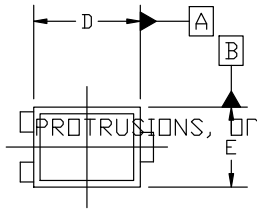


SOT-1123 0.80x0.60x0.37, 0.35P
CASE 524AA
ISSUE D

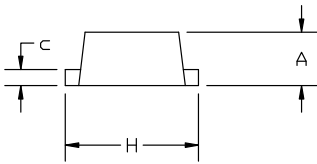
DATE 18 JAN 2024

NOTES:

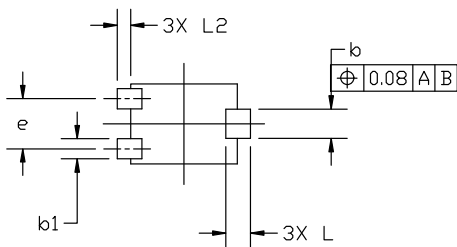
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 2018.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. MAXIMUM LEAD THICKNESS, ASH,



TOP VIEW



SIDE VIEW

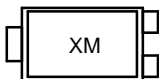


BOTTOM VIEW

← GATE BURRS.

| MILLIMETERS | | | |
|-------------|-----------|-------|-------|
| DIM | MIN | NOM | MAX |
| A | 0.34 | 0.37 | 0.40 |
| b | 0.15 | 0.22 | 0.2 |
| | | | |
| | | | 0.5 |
| 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

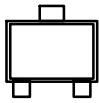
STYLE 3:
 PIN 1. ANODE
 2. ANODE
 3. CATHODE

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



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