BCX17LT1G, PNP
BCX18LT1G, PNP
BCX19LT1G, NPN
SBCX19LT1G, NPN

General Purpose Transistors

Voltage and Current are Negative for PNP Transistors

Features

- 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

Rating	Symbol	Value	Unit
Collector − Emitter Voltage BCX17, BCX19 BCX18	V_{CEO}	 45 25	Vdc
Collector − Base Voltage BCX17, BCX19 BCX18	V_{CBO}	 50 30	Vdc
Emitter − Base Voltage	V_{EBO}	5.0	Vdc
Collector Current − Continuous	I_C	500	mAdc

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Total Device Dissipation FR−5 Board (Note 1), T_A = 25°C Derate above 25°C	P_D	225 1.8	mW mW/°C
Thermal Resistance, Junction−to−Ambient	$R_{\theta JA}$	556	°C/W
Total Device Dissipation Alumina Substrate, (Note 2) T_A = 25°C Derate above 25°C	P_D	300 2.4	mW mW/°C
Thermal Resistance, Junction−to−Ambient	$R_{\theta JA}$	417	°C/W
Junction and Storage Temperature	T_J, T_{stg}	−55 to +150	°C

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.

1. FR−5 = 1.0 × 0.75 × 0.062 in.
2. Alumina = 0.4 × 0.3 × 0.024 in 99.5% alumina.

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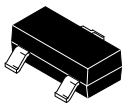
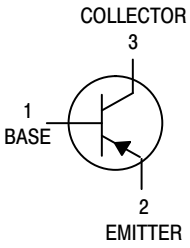
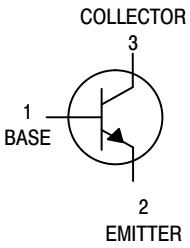


SOT−23
(TO−236)
CASE 318−08
STYLE 6

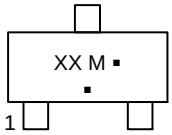
PNP



NPN



MARKING DIAGRAM



XX = T1, T2 or U1
M = Date Code*
▪ = Pb−Free Package

(Note: Microdot may be in either location)

*Date Code orientation and/or overbar may vary depending upon manufacturing location.

ORDERING INFORMATION

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

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS					
Collector−Emitter Breakdown Voltage (I_C = 10 mAdc, I_B = 0) BCX17, BCX19, SBCX19 BCX18	$V_{(BR)CEO}$	 45 25	 − −	 − −	Vdc
Collector−Emitter Breakdown Voltage (I_C = 10 μAdc, I_C = 0) BCX17, BCX19, SBCX19 BCX18	$V_{(BR)CES}$	 50 30	 − −	 − −	Vdc
Collector Cutoff Current (V_{CB} = 20 Vdc, I_E = 0) (V_{CB} = 20 Vdc, I_E = 0, T_A = 150°C)	I_{CBO}	 − −	 − −	 100 5.0	 nAdc μAdc
Emitter Cutoff Current (V_{EB} = 5.0 Vdc, I_C = 0)	I_{EBO}	 −	 −	 10	 μAdc
ON CHARACTERISTICS					
DC Current Gain (I_C = 100 mAdc, V_{CE} = 1.0 Vdc) (I_C = 300 mAdc, V_{CE} = 1.0 Vdc) (I_C = 500 mAdc, V_{CE} = 1.0 Vdc)	h_{FE}	 100 70 40	 − − −	 600 − −	−
Collector−Emitter Saturation Voltage (I_C = 500 mAdc, I_B = 50 mAdc)	$V_{CE(sat)}$	 −	 −	 0.62	Vdc
Base−Emitter On Voltage (I_C = 500 mAdc, V_{CE} = 1.0 Vdc)	$V_{BE(on)}$	 −	 −	 1.2	Vdc

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.

ORDERING INFORMATION

Device	Specific Marking	Package	Shipping†
BCX17LT1G	T1	SOT−23 (Pb−Free)	3,000 / Tape & Reel
NSVBCX17LT1G*	T1	SOT−23 (Pb−Free)	3,000 / Tape & Reel
BCX18LT1G	T2	SOT−23 (Pb−Free)	3,000 / Tape & Reel
BCX19LT1G	U1	SOT−23 (Pb−Free)	3,000 / Tape & Reel
SBCX19LT1G*	U1	SOT−23 (Pb−Free)	3,000 / 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.

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

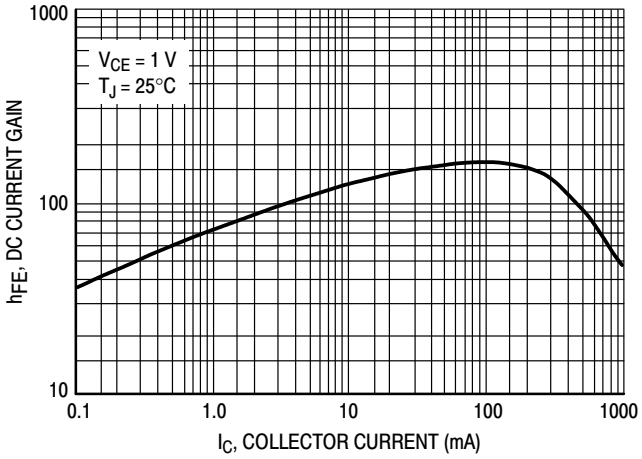


Figure 1. DC Current Gain

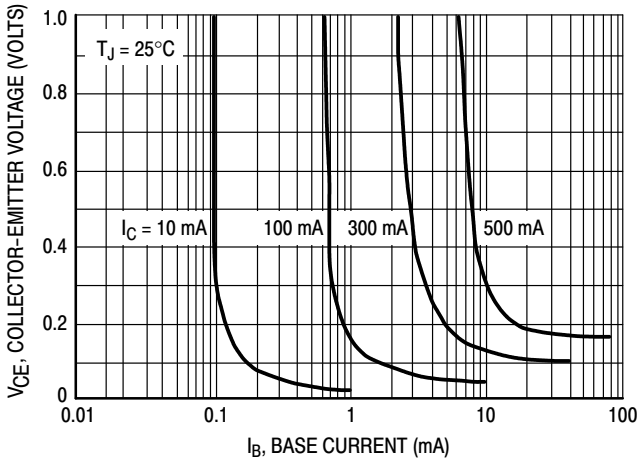


Figure 2. Saturation Region

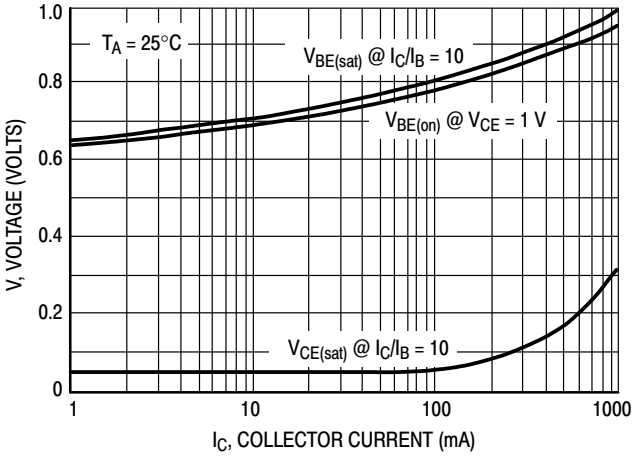


Figure 3. “On” Voltages

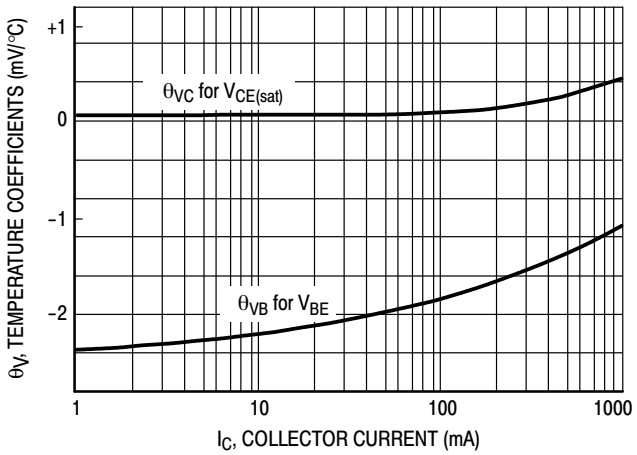


Figure 4. Temperature Coefficients

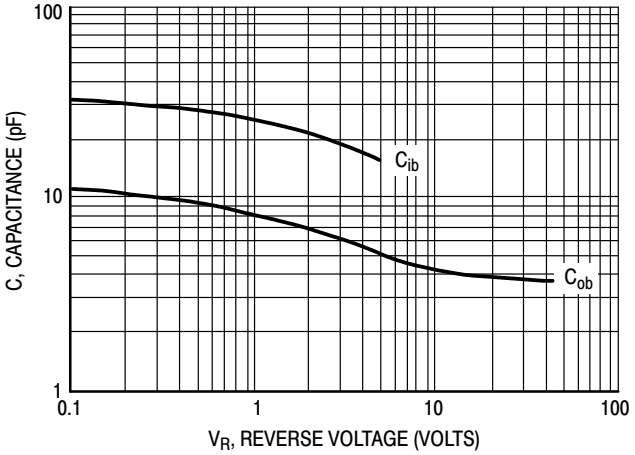
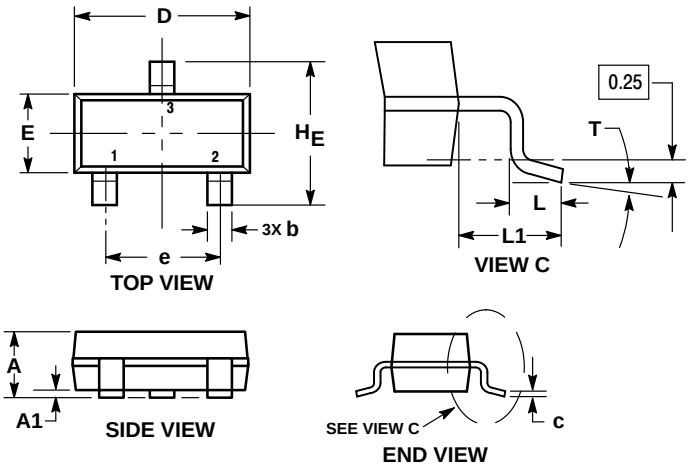


Figure 5. Capacitances

PACKAGE DIMENSIONS

SOT−23 (TO−236)
CASE 318−08
ISSUE AR

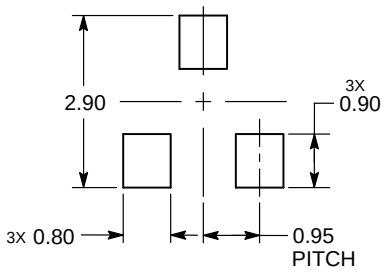


NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF THE BASE MATERIAL.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS.

	MILLIMETERS			INCHES		
DIM	MIN	NOM	MAX	MIN	NOM	MAX
A	0.89	1.00	1.11	0.035	0.039	0.044
A1	0.01	0.06	0.10	0.000	0.002	0.004
b	0.37	0.44	0.50	0.015	0.017	0.020
c	0.08	0.14	0.20	0.003	0.006	0.008
D	2.80	2.90	3.04	0.110	0.114	0.120
E	1.20	1.30	1.40	0.047	0.051	0.055
e	1.78	1.90	2.04	0.070	0.075	0.080
L	0.30	0.43	0.55	0.012	0.017	0.022
L1	0.35	0.54	0.69	0.014	0.021	0.027
H_E	2.10	2.40	2.64	0.083	0.094	0.104
T	0°	−−−	10°	0°	−−−	10°

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

RECOMMENDED SOLDERING FOOTPRINT*



DIMENSIONS: MILLIMETERS

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

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:
Literature Distribution Center for ON Semiconductor
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