BCX17LT1, BCX18LT1, PNP BCX19LT1, NPN

General Purpose Transistors

Voltage and Current are Negative for PNP Transistors

Features

• Pb-Free Packages are Available

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector – Emitter Voltage BCX17LT1, BCX19LT1 BCX18LT1	V _{CEO}	45 25	Vdc
Collector - Base Voltage BCX17LT1, BCX19LT1 BCX18LT1	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	$R_{ heta JA}$	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	$R_{ heta JA}$	417	°C/W			
Junction and Storage Temperature	T _J , T _{stg}	-55 to +150	°C			

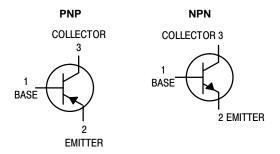
Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

- 1. FR-5 = $1.0 \times 0.75 \times 0.062$ in.
- 2. Alumina = $0.4 \times 0.3 \times 0.024$ in 99.5% alumina.



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SOT-23 CASE 318 STYLE 6

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.

BCX17LT1, BCX18LT1, PNP BCX19LT1, NPN

ELECTRICAL CHARACTERISTICS ($T_A = 25^{\circ}C$ unless otherwise noted)

Characteristic		Symbol	Min	Тур	Max	Unit
OFF CHARACTERISTICS						
Collector–Emitter Breakdown Voltage (I _C = 10 mAdc, I _B = 0)	BCX17, 19 BCX18	V _(BR) CEO	45 25	- -	- -	Vdc
Collector–Emitter Breakdown Voltage ($I_C = 10 \mu Adc, I_C = 0$)	BCX17, 19 BCX18	V _{(BR)CES}	50 30	- -	- -	Vdc
Collector Cutoff Current $(V_{CB} = 20 \text{ Vdc}, I_E = 0)$ $(V_{CB} = 20 \text{ Vdc}, I_E = 0, T_A = 150^{\circ}\text{C})$		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 $ \begin{array}{l} (I_C = 100 \text{ mAdc, } V_{CE} = 1.0 \text{ Vdc)} \\ (I_C = 300 \text{ mAdc, } V_{CE} = 1.0 \text{ Vdc)} \\ (I_C = 500 \text{ mAdc, } V_{CE} = 1.0 \text{ Vdc)} \end{array} $		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

ORDERING INFORMATION

Device	Specific Marking	Package	Shipping [†]		
BCX17LT1		SOT-23	3000 / Tape & Reel		
BCX17LT1G	[SOT-23 (Pb-Free)	3000 / Tape & Reel		
BCX17LT3	T1	SOT-23	10,000 / Tape & Reel		
BCX17LT3G		SOT-23 (Pb-Free)	10,000 / Tape & Reel		
BCX18LT1		SOT-23	3000 / Tape & Reel		
BCX18LT1G	T2	SOT-23 (Pb-Free)	3000 / Tape & Reel		
BCX19LT1		SOT-23	3000 / Tape & Reel		
BCX19LT1G	X19LT1G U1		3000 / 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.

BCX17LT1, BCX18LT1, PNP BCX19LT1, NPN

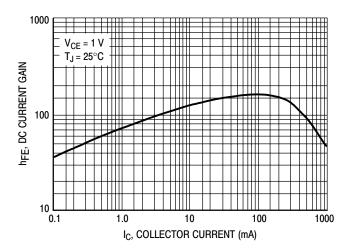


Figure 1. DC Current Gain

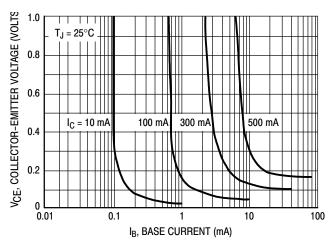


Figure 2. Saturation Region

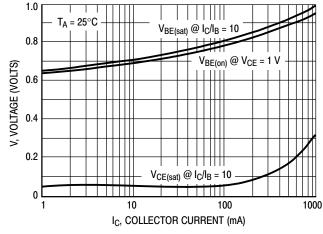


Figure 3. "On" Voltages

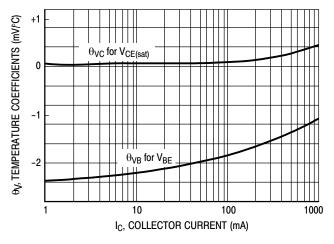


Figure 4. Temperature Coefficients

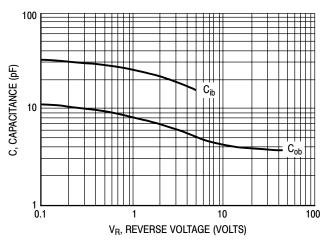
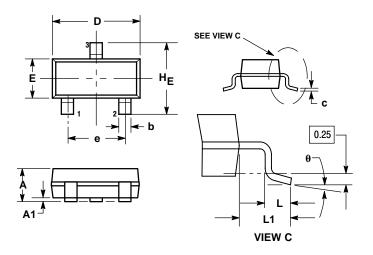


Figure 5. Capacitances

BCX17LT1, BCX18LT1, PNP BCX19LT1, NPN

PACKAGE DIMENSIONS

SOT-23 (TO-236) CASE 318-08 ISSUE AN



NOTES

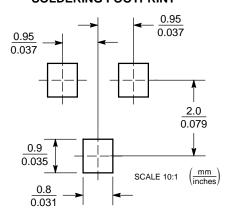
- DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
- CONTROLLING DIMENSION: INCH.
 MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
- 318–01 THRU –07 AND –09 OBSOLETE, NEW STANDARD 318–08.

	MILLIMETERS			INCHES		
DIM	MIN	NOM	MAX	MIN	NOM	MAX
Α	0.89	1.00	1.11	0.035	0.040	0.044
A1	0.01	0.06	0.10	0.001	0.002	0.004
b	0.37	0.44	0.50	0.015	0.018	0.020
С	0.09	0.13	0.18	0.003	0.005	0.007
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
е	1.78	1.90	2.04	0.070	0.075	0.081
L	0.10	0.20	0.30	0.004	0.008	0.012
L1	0.35	0.54	0.69	0.014	0.021	0.029
HE	2.10	2.40	2.64	0.083	0.094	0.104

STYLE 6:

- PIN 1. BASE EMITTER 2.
 - COLLECTOR

SOLDERING 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.

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