

## Continental Device India Limited

An ISO/TS 16949, ISO 9001 and ISO 14001 Certified Company





# NPN SILICON PLANAR EPITAXIAL DARLINGTON TRANSISTOR

**BC517** 



TO-92 Plastic Package

ABSOLUTE MAXIMUM RATINGS (T<sub>a</sub>=25°C)

DESCRIPTION	SYMBOL	VALUE	UNITS
Collector Emitter Voltage	V <sub>CES</sub>	30	V
Collector Base Voltage	V <sub>CBO</sub>	40	V
Emitter Base Voltage	V <sub>EBO</sub>	10	V
Collector Current Continuous	I <sub>C</sub>	1.0	A
Power Dissipation at T <sub>a</sub> =25°C	P <sub>D</sub>	625	mW
Derate Above 25°C		12	mW/°C
Power Dissipation at T <sub>c</sub> =25°C	P <sub>D</sub>	1.5	W
Derate Above 25°C		12	mW/°C
Operating And Storage Junction Temperature Range	T <sub>j</sub> , T <sub>stg</sub>	- 55 to +150	°C

### THERMAL RESISTANCE

Junction to Ambient in free air	R <sub>th (j-a)</sub>	200	°C/W
Junction to Case	R <sub>th (j-c)</sub>	83.3	°C/W

# ELECTRICAL CHARACTERISTICS (T<sub>a</sub>=25°C unless specified otherwise)

DESCRIPTION	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNITS
Collector Emitter Voltage	$V_{CES}$	$I_C=2mA, V_{BE}=0$	30			V
Collector Base Voltage	$V_{CBO}$	I <sub>C</sub> =10μΑ, I <sub>E</sub> =0	40			V
Emitter Base Voltage	$V_{EBO}$	I <sub>E</sub> =100uA, I <sub>C</sub> =0	10			V
Collector Cut Off Current	I <sub>CES</sub>	$V_{CE}$ =30V, $V_{BE}$ =0			500	nA
Collector Cut Off Current	I <sub>CBO</sub>	$V_{CB}$ =30V, $I_E$ =0			100	nA
Emitter Cut Off Current	I <sub>EBO</sub>	V <sub>EB</sub> =10V, I <sub>C</sub> =0			100	nA
DC Current Gain	*h <sub>FE</sub>	I <sub>C</sub> =20mA, V <sub>CE</sub> =10V	30,000			
Collector Emitter Saturation Voltage	*V <sub>CE (sat)</sub>	I <sub>C</sub> =100mA, I <sub>B</sub> =0.1mA			1.0	V
Base Emitter On Voltage	*V <sub>BE (on)</sub>	I <sub>C</sub> =10mA, V <sub>CE</sub> =5V			1.4	V

# **SMALL SIGNAL CHARACTERISTICS**

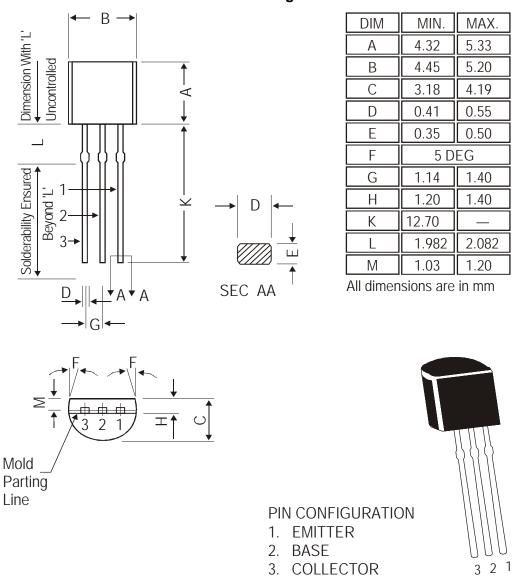
DESCRIPTION	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNITS
Current Gain - Bandwidth product	**f <sub>T</sub>	I <sub>C</sub> =10mA, V <sub>CE</sub> =5V, f=100MHz		200		MHz

\*Pulse Test: Pulse Width ≤ 2%

\*\* $f_T = |h_{fe}|$  \*  $f_{test}$  BC517Rev\_3 250612

TO-92 Plastic Package

# **TO-92 Plastic Package**



The TO-92 Package, Tape and Ammo Pack drawings are correct as on the date of issue/revision of this Data Sheet.

The currently valild dimensions and information, may please be confirmed from the TO-92 Drawing in the Packages and Packing Section of the Product Catalogue.

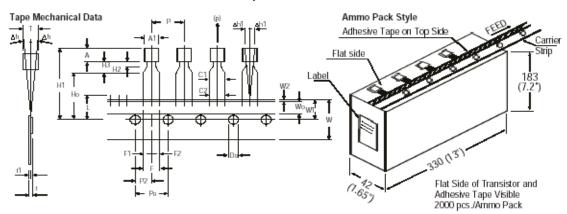
# **Packing Details**

PACKAGE	STANDARD PACK		INNER CARTO	ON BOX	OUTER CARTON BOX		
	Details	Net Weight/Qty	Size	Qty	Size	Qty	Gr Wt
TO-92 Bulk	1K/polybag	200 gm/1K pcs	3" x 7.5" x 7.5"	5K	17" x 15" x 13.5"	80K	23 kgs
TO-92 T&A	2K/ammo box	645 gm/2K pcs	12.5" x 8" x 1.8"	2K	17" x 15" x 13.5"	32K	12.5 kgs

BC517Rev\_3 250612

# TO-92 Plastic Package

### TO-92 Tape and Ammo Pack



#### All dimensions are in mm

		SPECIFICATION				
ITEM	SYMBOL	MIN.	NOM.	MAX.	TOL.	
BODY WIDTH	A1	4.45		5.20		NOTES
BODY HEIGHT BODY THICKNESS	A T	4.32 3.18		5.33 4.19		Maximum alignment deviation between leads will not to be greater than 0.2mm.
PITCH OF COMPONENT	P	3.10	12.7	7.10	± 1.0	
*1FEED HOLE PITCH	Po		12.7		± 0.3	Maximum non-cumulative variation between tape feed holes shall not
*2 FEED HOLE CENTRE TO						exceed 1 mm in 20 pitches.
COMPONENT CENTRE	P2		6.35		± 0.4	3. Holddown tape will not exceed beyond
DISTANCE BETWEEN OUTER LEADS	F		5.08		+ 0.6 - 0.2	the edge(s) of carrier tape and there shall be no exposure of adhesive.
*3 COMPONENT ALIGNMENT SIDE VIEW	Δh		0	1.0		4. There will be no more than three (3)
*4 COMPONENT ALIGNMENT FRONT VIEW	∆h1		0	1.3		consecutive missing components in a
TAPE WIDTH	w		18		± 0.5	tape.
HOLD-DOWN TAPE WIDTH	Wo		6		± 0.2	A tape trailer, having at least three feed
HOLE POSITION	W1		9		+ 0.7 - 0.5	holes are provided after the last component in a tape.
HOLD-DOWN TAPE POSITION	W2	0.0		0.7	0.0	6. Splices should not interfere with the
LEAD WIRE CLINCH HEIGHT	Ho		16		± 0.5	sprocket feed holes.
COMPONENT HEIGHT	H1			24.0		
LENGTH OF SNIPPED LEADS	L			11.0		
FEED HOLE DIAMETER	Do		4		± 0.2	REMARKS
*5 TOTAL TAPE THICKNESS	t			1.2		
LEAD - TO - LEAD DISTANCE	F1, F2	2.40		2.70		*1 Cumulative pitch error 1.0 mm/20 pitch
STAND OFF	H2	0.45		1.45	- 0.1	*2 To be measured at bottom of clinch
CLINCH HEIGHT	НЗ			3.0		*3 At top of body
LEAD PARALLELISM	C1 - C2			0.22		*4 At top of body
PULL - OUT FORCE	(p)	6N				*5 t1 0.3 – 0.6 mm

# **Component Disposal Instructions**

- 1. CDIL Semiconductor Devices are RoHS compliant, customers are requested to please dispose as per prevailing Environmental Legislation of their Country.
- 2. In Europe, please dispose as per EU Directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE).

BC517Rev\_3 250612

Customer Notes BC517

TO-92 Plastic Package

### **Disclaimer**

The product information and the selection guides facilitate selection of the CDIL's Semiconductor Device(s) best suited for application in your product(s) as per your requirement. It is recommended that you completely review our Data Sheet(s) so as to confirm that the Device(s) meet functionality parameters for your application. The information furnished in the Data Sheet and on the CDIL Web Site/CD are believed to be accurate and reliable. CDIL however, does not assume responsibility for inaccuracies or incomplete information. Furthermore, CDIL does not assume liability whatsoever, arising out of the application or use of any CDIL product; neither does it convey any license under its patent rights nor rights of others. These products are not designed for use in life saving/support appliances or systems. CDIL customers selling these products (either as individual Semiconductor Devices or incorporated in their end products), in any life saving/support appliances or systems or applications do so at their own risk and CDIL will not be responsible for any damages resulting from such sale(s).

CDIL strives for continuous improvement and reserves the right to change the specifications of its products without prior notice.



CDIL is a registered Trademark of

### Continental Device India Limited

C-120 Naraina Industrial Area, New Delhi 110 028, India.
Telephone + 91-11-2579 6150, 4141 1112 Fax + 91-11-2579 5290, 4141 1119
email@cdil.com www.cdil.com

BC517Rev\_3 250612