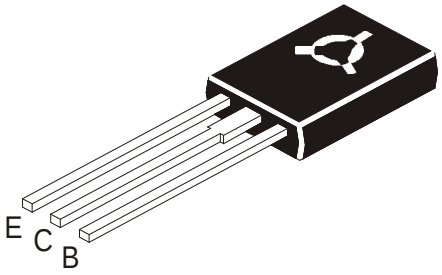
Continental Device India Limited

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

NPN SILICON POWER TRANSISTOR

CRD13003BC (9AC) (Tin Finish Part)
LEAD FREE



TO-126
Plastic Package

Applications
Suitable for Lighting, Switching Regulator and Motor Control

ABSOLUTE MAXIMUM RATINGS

DESCRIPTION	SYMBOL	VALUE	UNIT
Collector Base Voltage	V_{CBO}	700	V
Collector Emitter (sus) Voltage	V_{CEO}	400	V
Emitter Base Voltage	V_{EBO}	9.0	V
Collector Current Continuous	I_C	1.5	A
Peak	*I_{CM}	3.0	A
Base Current Continuous	I_B	0.75	A
Peak	*I_{BM}	1.5	A
Emitter Current Continuous	I_E	2.25	A
Peak	*I_{EM}	4.5	A
Power Dissipation at T_a=25ºC	P_D	1.4	W
Derate Above 25ºC		11.2	mW/ ºC
Power Dissipation at T_c=25ºC	P_D	45	W
Derate Above 25ºC		360	mW/ ºC
Operating And Storage Junction Temperature Range	T_j, T_{stg}	- 65 to+150	ºC

THERMAL RESISTANCE

Junction to Case	$R_{th\ (j-c)}$	2.77	ºC/W
Junction to Ambient	$R_{th\ (j-a)}$	89	ºC/W
Maximum Lead Temperature for Soldering Purpose: 1/8" from Case for 5 Seconds	T_L	275	ºC

***Pulse Test: Pulse Width=5ms, Duty Cycle=10%**

CRD13003BC(9AC)Rev120705E

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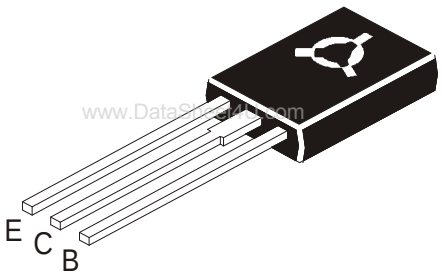

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ELECTRICAL CHARACTERISTICS (T_a=25ºC unless specified otherwise)

DESCRIPTION	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Collector Base Voltage	V_{CBO}	I_C=1mA, I_E=0	700	-	-	V
Collector Emitter (sus) Voltage	**$V_{CEO (sus)}$	I_C=10mA, I_B=0	400	-	-	V
Collector Cut Off Current	I_{CBO}	V_{CB}=700V, I_E=0	-	-	1.0	mA
		V_{CB}=700V, I_E=0, T_c=100ºC			5.0	mA
Emitter Cut Off Current	I_{EBO}	V_{EB}=9V, I_C=0	-	-	1.0	mA
DC Current Gain	**h_{FE}	I_C=0.5A, V_{CE}=5V	15	-	22	
		I_C=2A, V_{CE}=5V	4.0	-	25	
Collector Emitter Saturation Voltage	**$V_{CE (sat)}$	I_C=0.5A, I_B=0.1A	-	-	0.5	V
		I_C=1A, I_B=0.25A	-	-	1.0	V
		I_C=1.5A, I_B=0.5A	-	-	2.5	V
		I_C=1A, I_B=0.25A,T_c=100ºC	-	-	1.0	V
Base Emitter Saturation Voltage	**$V_{BE (sat)}$	I_C=0.5A, I_B=0.1A	-	-	1.0	V
		I_C=1A, I_B=0.25A	-	-	1.2	V
		I_C=1A, I_B=0.25A, T_c=100ºC	-	-	1.1	V

DYNAMIC CHARACTERISTICS

DESCRIPTION	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Current Gain Bandwidth Product	f_T	I_C=100mA, V_{CE}=10V, f=1MHz	4.0	-	-	MHz
Output Capacitance	C_{ob}	V_{CB}=10V, f=0.1MHz	-	21	-	pF

SWITCHING TIME

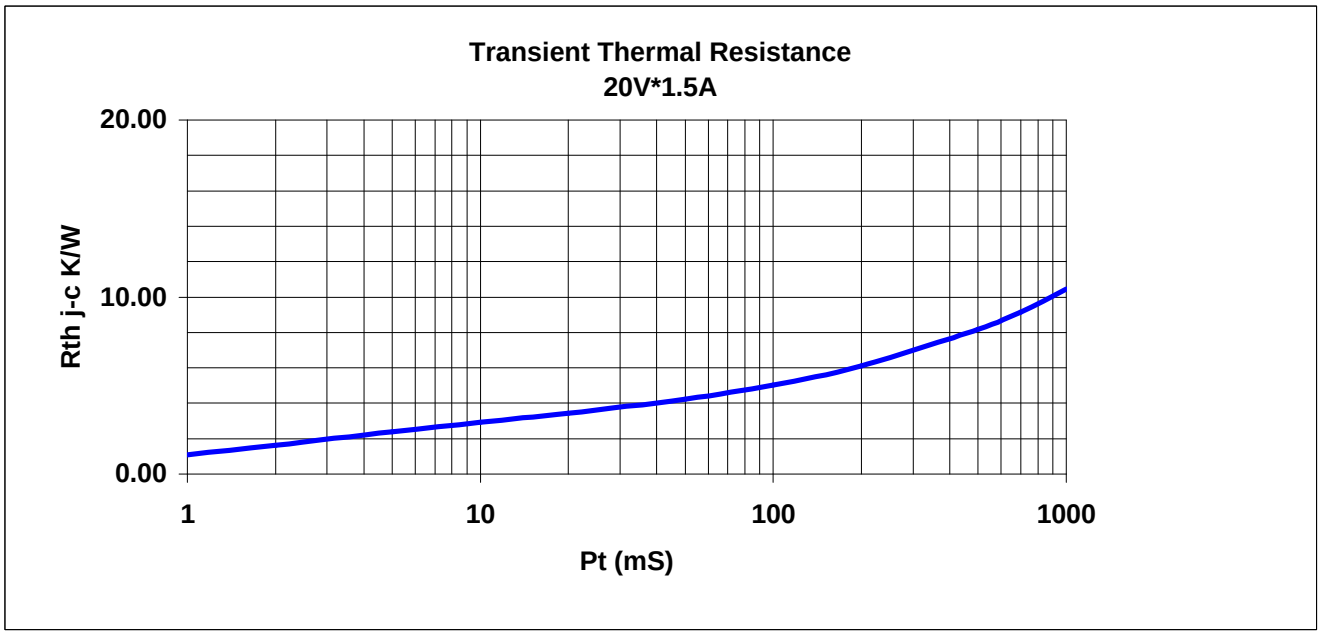
DESCRIPTION	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Turn on Time	t_{on}	V_{CC}=125V	-	-	1.1	µs
Fall Time	t_f	I_{B1}=0.2A, I_{B2}=0.2A	-	-	0.7	µs
Storage Time	t_{stg}	I_C=1A	-	-	4.0	µs

	For Lead Free Lead Finish
MARKING	**CRD1** **3003** **BC** **PXYY**
C = CDIL Logo **P = Plant Code, N for Delhi** **X = Year of Manufacturer** **YY = Week Code**	**'T' stands for Tin finish leads**

****Pulse Test:- PW=300ms, Duty Cycle=2%**

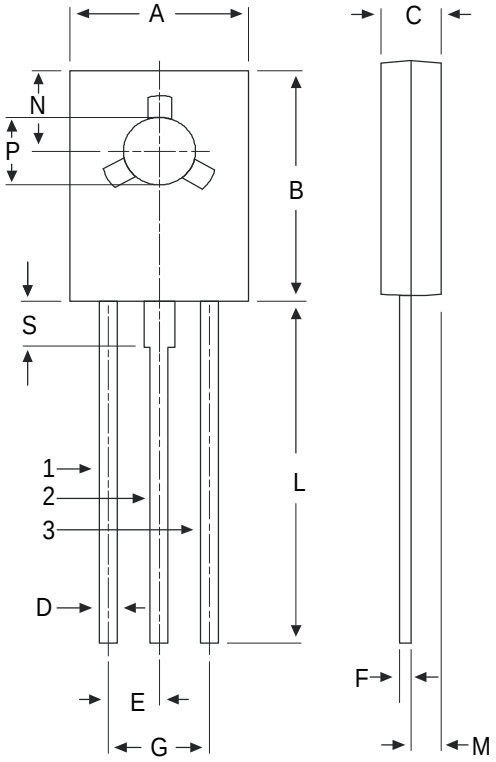
CRD13003BC(9AC)Rev120705E

CRD13003BC



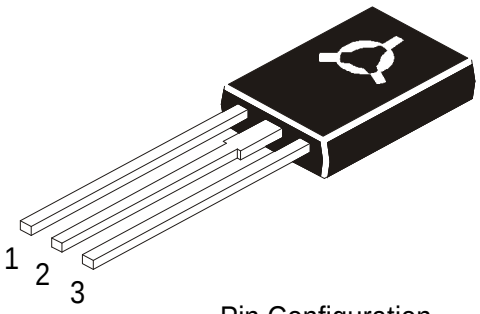
CRD13003BC(9AC)Rev120705E

TO-126 (SOT-32) Plastic Package



DIM	MIN	MAX
A	7.4	7.8
B	10.5	10.8
C	2.4	2.7
D	0.7	0.9
E	2.25 TYP.	
F	0.49	0.75
G	4.5 TYP.	
L	15.7 TYP.	
M	1.27 TYP.	
N	3.75 TYP.	
P	3.0	3.2
S	2.5 TYP.	

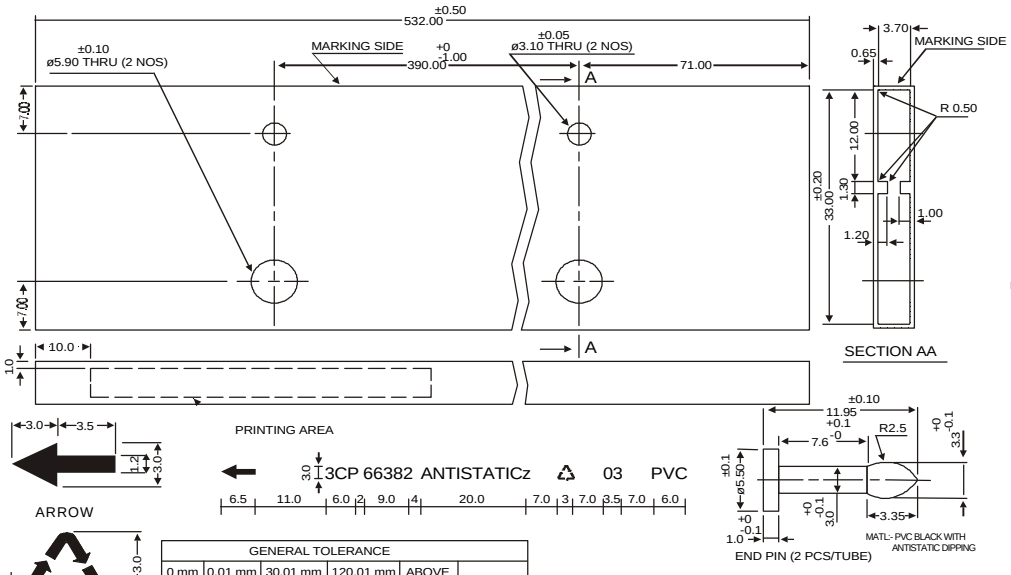
All dimensions in mm.



Pin Configuration

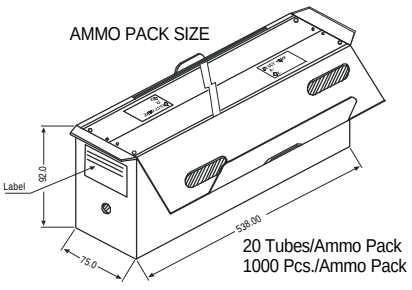
1. Emitter
2. Collector
3. Base

TO-126 TUBE PACKING



GENERAL TOLERANCE					
0 mm 5 mm	0.01 mm 30 mm	30.01 mm 120 mm	120.01 mm 315 mm	ABOVE 315 mm	ANGULAR
±0.1	±0.2	±0.3	±0.5	±0.8	±0° 30"

All dimensions in mm



20 Tubes/Ammo Pack
1000 Pcs./Ammo Pack

Notes:
1. All print in black.
2. All text in Helvetia medium font.

Packing Detail

PACKAGE	STANDARD PACK		INNER CARTON BOX		OUTER CARTON BOX		
	Details	Net Weight/Qty	Size	Qty	Size	Qty	Gr Wt
TO-126 Bulk	500 pcs/polybag	340 gm/500 pcs	3" x 7.5" x 7.5"	2K	17" x 15" x 13.5"	32K	31 kgs
TO-126 Tube	50 pcs/tube	73 gm/50 pcs	3" x 3.7" x 21.5"	1K	19" x 19" x 19"	10K	15 kgs

TO-126
Plastic Package

Disclaimer

The product information and the selection guides facilitate selection of the CDIL's Discrete 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 Discrete 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).

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