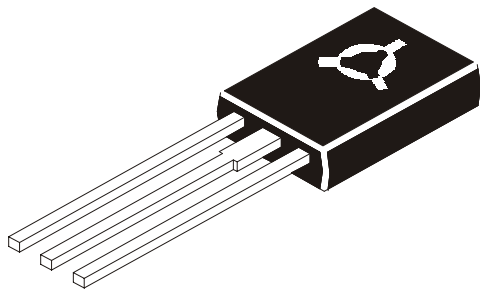


## NPN SILICON POWER TRANSISTOR

**CD13003**  
**TO-126**

**MARKING: CD**  
**13003**



### Applications.

Suitable for Lighting, Switching Regulator and Motor Control.

### ABSOLUTE MAXIMUM RATINGS

DESCRIPTION	SYMBOL	VALUE	UNIT
Collector -Base Voltage	VCBO	600	V
Collector -Emitter ( sus) Voltage	VCEO	400	V
Emitter -Base Voltage	VEBO	9.0	V
Collector Current Continuous	IC	1.5	A
Peak (1)	ICM	3.0	A
Base Current Continuous	IB	0.75	A
Peak (1)	IBM	1.5	A
Emitter Current Continuous	IE	2.25	A
Peak (1)	IEM	4.5	A
Power Dissipation @ Ta=25 deg C	PD	1.4	W
Derate Above 25 deg C		11.2	mW /deg C
Power Dissipation @ Tc=25 deg C	PD	45	W
Derate Above 25 deg C		320	mW /deg C
Operating And Storage Junction Temperature Range	Tj, Tstg	-65 to +150	deg C

### THERMAL RESISTANCE

Junction to Case	Rth (j-c)	3.12	deg C/W
Junction to Ambient	Rth (j-a)	89	deg C/W
Maximum Lead Temperature for Soldering Purposes: 1/8" from Case for 5 Seconds.	TL	275	deg C

(1) Pulse Test: Pulse Width= 5ms Duty Cycle =10%

### ELECTRICAL CHARACTERISTICS (Ta=25 deg C Unless Otherwise Specified)

DESCRIPTION	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Collector -Base Voltage	VCBO	IC=1mA, IE=0	600	-	-	V
Collector -Emitter ( sus) Voltage	VCEO(sus)*	IC=10mA, IB=0	400	-	-	V
Collector-Cutoff Current	ICBO	VCB=600V, IE=0	-	-	1.0	mA
		VCB=600V, IE=0, TC=100 deg C	-	-	5.0	mA
Emitter-Cutoff Current	IEBO	VEB=9V, IC=0	-	-	1.0	mA
DC Current Gain	hFE*	IC=0.5A, VCE=5V	8.0	-	40	
		IC=2A, VCE=5V	5.0	-	25	

**ELECTRICAL CHARACTERISTICS (Ta=25 deg C Unless Otherwise Specified)****CD13003**

DESCRIPTION	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Collector Emitter Saturation Voltage	VCE(Sat) *	IC=0.5A, IB=0.1A	-	-	0.50	V
		IC=1A, IB=0.25A	-	-	1.0	V
		IC=1.5A, IB=0.5A	-	-	2.5	V
		IC=1A, IB=0.25A, TC=100deg C	-	-	1.0	V
Base Emitter Saturation Voltage	VBE(Sat) *	IC=0.5A, IB=0.1A	-	-	1.0	V
		IC=1A, IB=0.25A	-	-	1.2	V
		IC=1A, IB=0.25A, TC=100deg C	-	-	1.1	V

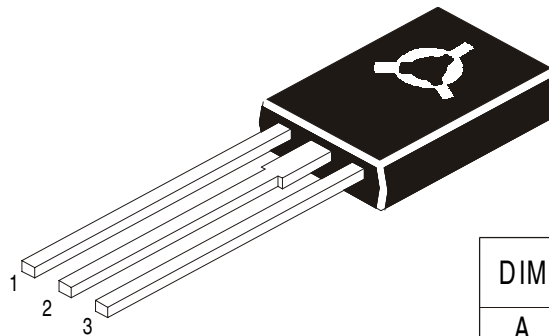
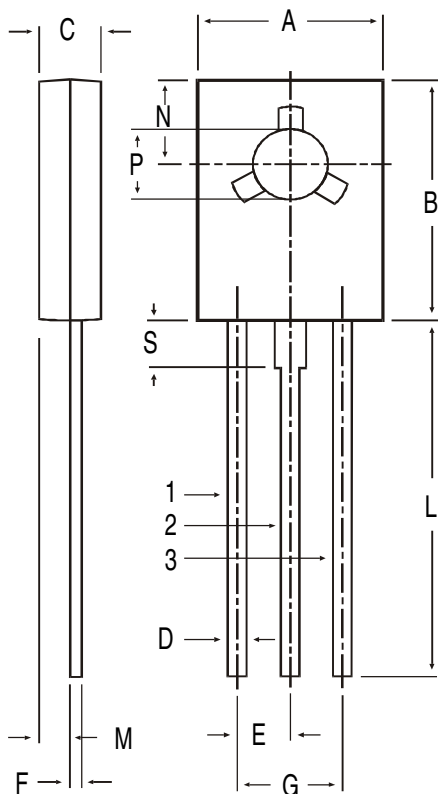
**DYNAMIC CHARACTERISTICS**

Current Gain- Bandwidth Product	ft	IC=100mA, VCE=10V f=1MHz	4.0	-	-	MHz
Output Capacitance	Cob	VCB=10V, f=0.1MHz	-	21	-	pF

**SWITCHING CHARACTERISTICS**

Turn on Time	ton	VCC=125V	-	-	1.1	us
Storage Time	tstg	IC=1A	-	-	4.0	us
Fall Time	tf	IB1=0.2A, IB2=0.2A	-	-	0.7	us

\*Pulse Test : PW=300us, Duty Cycle=2%

**TO-126 (SOT-32) Plastic Package****PIN CONFIGURATION**

1. EMITTER
2. COLLECTOR
3. BASE

All dimensions in mm.

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.	

**Packing Detail**

PACKAGE	STANDARD PACK		INNER CARTON BOX		OUTER CARTON BOX		
	Details	Net Weight/Qty	Size	Qty	Size	Qty	Gr Wt
TO-126	500 pcs/polybag	340 gm/500 pcs	3" x 7.5" x 7.5"	2.0K	17" x 15" x 13.5"	32.0K	31 kgs

## Notes

## 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 on the CDIL Web Site/CD is 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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