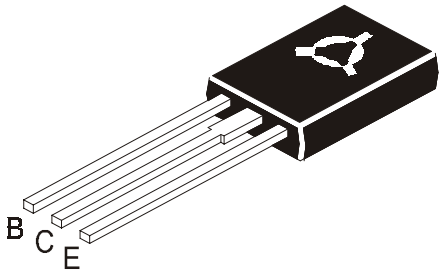
NPN SILICON POWER TRANSISTOR

C13003



TO126
Plastic Package

Applications
Suitable for Lighting, Switching Regulator and Motor Control

ABSOLUTE MAXIMUM RATINGS(Ta=25ºC unless specified otherwise)

DESCRIPTION	SYMBOL	VALUE	UNIT
Collector -Base Voltage	V_{CBO}	600	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 (1)	I_{CM}	3.0	A
Base Current Continuous	I_B	0.75	A
Peak (1)	I_{BM}	1.5	A
Emitter Current Continuous	I_E	2.25	A
Peak (1)	I_{EM}	4.5	A
Power Dissipation @ Ta=25°C	P_D	1.4	W
Derate Above 25ºC		11.2	mW/ºC
Power Dissipation @ Tc=25ºC	P_D	40	W
Derate Above 25ºC		320	mW/ºC
Operating And Storage Junction Temperature Range	T_j, T_{stg}	-65 to +150	ºC
THERMAL RESISTANCE			
Junction to Case	$Rth_{(j-c)}$	3.12	ºC/W
Junction to Ambient	$Rth_{(j-a)}$	89	ºC/W
Maximum Lead Temperature for Soldering Purposes: 1/8" from Case for 5 Seconds.	TL	275	ºC

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

ELECTRICAL CHARACTERISTICS (Ta=25ºC Unless Otherwise Specified)

DESCRIPTION	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Collector -Base Voltage	V_{CBO}	I_C=1mA, I_E=0	600	-	-	V
Collector -Emitter (sus) Voltage	$V_{CEO(sus)}$*	I_C=10mA, I_B=0	400	-	-	V
Collector-Cuttoff Current	I_{CBO}	V_{CB}=600V, I_E=0	-	-	1.0	mA
		VCB=600V, IE=0,TC=100ºC	-	-	5.0	mA
Emitter-Cuttoff Current	I_{EBO}	V_{EB}=9V, I_C=0	-	-	1.0	mA

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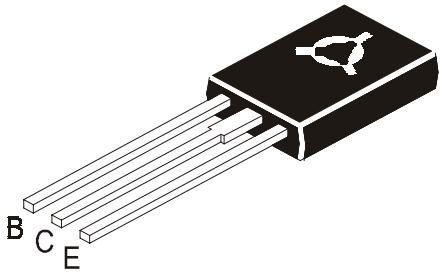


TO126
Plastic Package

ELECTRICAL CHARACTERISTICS (Ta=25ºC Unless Otherwise Specified)

DESCRIPTION	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
DC Current Gain	hFE*	I_C=0.3A, V_{CE}=2V (1) Note	10	-	30	
		I_C=0.5A,V_{CE}=2V	8.0	-	40	
		I_C=1A,V_{CE}=2V	4.0	-	25	
Collector Emitter Saturation Voltage	$V_{CE(Sat)}$ *	I_C=0.5A, I_B=0.1A	-	-	0.50	V
		I_C=1A, I_B=0.25A	-	-	1.0	V
		I_C=1.5A, I_B=0.5A	-	-	3.0	V
		I_C=1A, I_B=0.25A,TC=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,TC=100ºC	-	-	1.1	V

ELECTRICAL CHARACTERISTICS (Ta=25ºC Unless Otherwise Specified)

DYNAMIC CHARACTERISTICS

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 CHARACTERISTICS

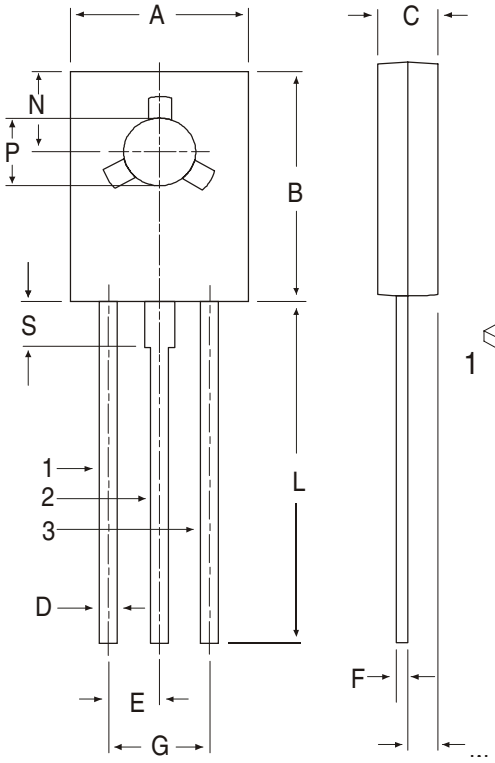
Delay Time	td		-	-	0.1	µs
Rise Time	tr	V_{CC}=125V, I_C=1A, IB1=IB2=0.2A,	-	-	1.0	µs
Storage Time	ts	tp=25µs,	-	-	4.0	µs
Fall Time	tf	Duty Cycle=1%	-	-	0.7	µs
						µs
Storage Time	tsv	I_C=1A, Vclamp=300V, IB1=0.2A,	-	-	4.0	µs
Crossover Time	tc	$V_{BE(}$off)=5V,	-	-	0.75	µs
Fall Time	tfi	TC=100ºC	-	0.15	-	µs

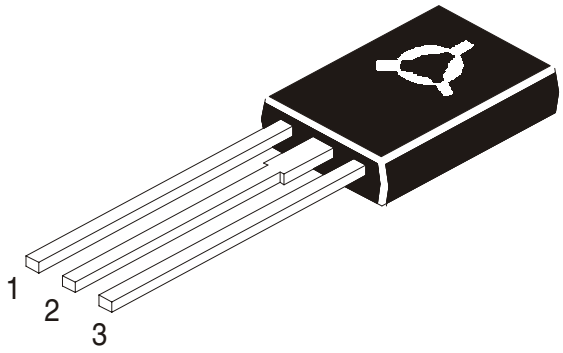
(1) hFE Classifications:-	**A**	**B**	**C**	**E**	**F**
Note:- Product is pre selected in DC current gain (Groups A to F). CDIL reserves the right to ship any of the groups according to production availability.	**11 -16**	**15 -19**	**18-22**	**21-25**	**24-30**

MARKING	**C A**	**C B**	**C C**	**C E**	**C F**
	13003	**13003**	**13003**	**13003**	**13003**

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

TO-126 (SOT-32) Plastic Package





Pin Configuration

1. Base
2. Collector
3. Emitter

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 diminsions in mm.

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

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 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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