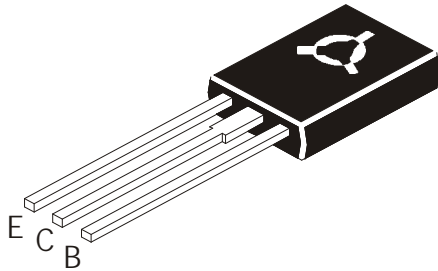


## EPITAXIAL SILICON POWER TRANSISTORS



BD233	BD234
BD235	BD236
BD237	BD238
NPN	PNP

TO126  
Plastic Package

Intended for use in Medium Power Linear Switching Applications

### ABSOLUTE MAXIMUM RATINGS

DESCRIPTION	SYMBOL	BD233 BD234	BD235 BD236	BD237 BD238	UNIT
Collector Base Voltage	$V_{CBO}$	45	60	100	V
Collector Emitter Voltage	$V_{CEO}$	45	60	80	V
Collector Emitter Voltage ( $R_{BE}=1KW$ )	$V_{CER}$	45	60	100	V
Emitter Base Voltage	$V_{EBO}$	5.0			V
Collector Current	$I_C$	2.0			A
Collector Peak Current	$I_{CM}$	6.0			A
Total Dissipation @ $T_C=25^\circ C$	$P_D$	25			W
Total Dissipation @ $T_a=25^\circ C$ Derate above $25^\circ C$	$P_D$	1.25 10			W mW/°C
Operating and Storage Junction Temperature Range	$T_j, T_{stg}$	- 65 to +150			°C

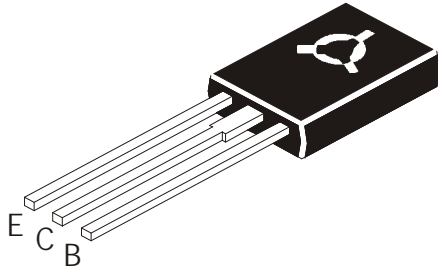
### THERMAL CHARACTERISTICS

Junction to Case	$R_{th(j-c)}$	5.0	°C/W
Junction to Ambient in free air	$R_{th(j-a)}$	100	°C/W

### ELECTRICAL CHARACTERISTICS ( $T_C=25^\circ C$ unless specified otherwise)

DESCRIPTION	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT	
Collector Cut off Current	$I_{CBO}$	$V_{CB}=45V, I_E=0$ <b>BD233/234</b>			100	$\mu A$	
		$V_{CB}=60V, I_E=0$ <b>BD235/236</b>			100	$\mu A$	
		$V_{CB}=100V, I_E=0$ <b>BD237/238</b>			100	$\mu A$	
		$T_C = 150^\circ C$					
		$V_{CB}=45V, I_E=0$ <b>BD233/234</b>				2.0	mA
		$V_{CB}=60V, I_E=0$ <b>BD235/236</b>				2.0	mA
$V_{CB}=100V, I_E=0$ <b>BD237/238</b>				2.0	mA		
Emitter Cut off Current	$I_{EBO}$	$V_{EB}=5V, I_C=0$			1.0	mA	
Collector Emitter Sustaining Voltage	$*V_{CEO(sus)}$	$I_C=0.1A, I_B=0$ <b>BD233/234</b>	45			V	
		<b>BD235/236</b>	60			V	
		<b>BD237/238</b>	80			V	
Collector Emitter Saturation Voltage	$*V_{CE(sat)}$	$I_C=1.0A, I_B=0.1A$			0.6	V	
Base Emitter Voltage	$*V_{BE(on)}$	$I_C=1.0A, V_{CE}=2V$			1.3	V	

# EPITAXIAL SILICON POWER TRANSISTORS



BD233	BD234
BD235	BD236
BD237	BD238
NPN	PNP

**TO126**  
**Plastic Package**

## ELECTRICAL CHARACTERISTICS ( $T_C=25^\circ\text{C}$ unless specified otherwise)

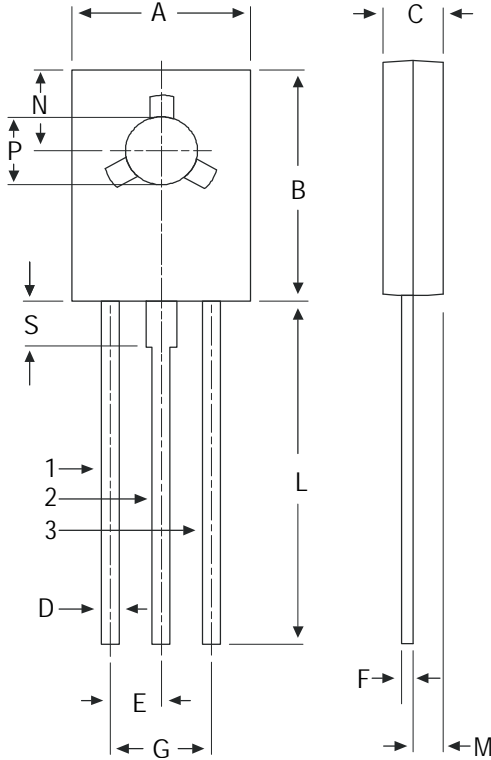
DESCRIPTION	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
DC Current Gain	$*h_{FE}$	$I_C=150\text{mA}, V_{CE}=2\text{V}$	40			
		$I_C=1.0\text{A}, V_{CE}=2\text{V}$	25			
Current Gain Bandwidth Product	$f_T$	$I_C=250\text{mA}, V_{CE}=10\text{V}$	3			MHz
$*h_{FE1} / h_{FE2}$	Matched Pairs	$I_C=150\text{mA}, V_{CE}=2\text{V}$		1.6		

\*Pulsed Pulse Duration=300 $\mu\text{s}$ , Duty Cycle=1.5%

BD233	BD234
BD235	BD236
BD237	BD238
NPN	PNP

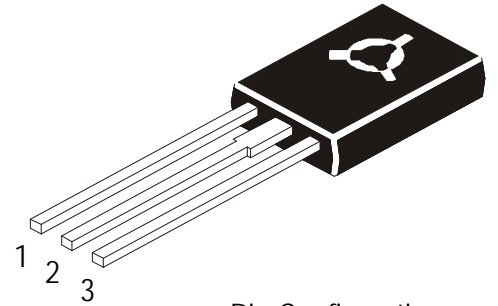
**TO126  
Plastic Package**

**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.	

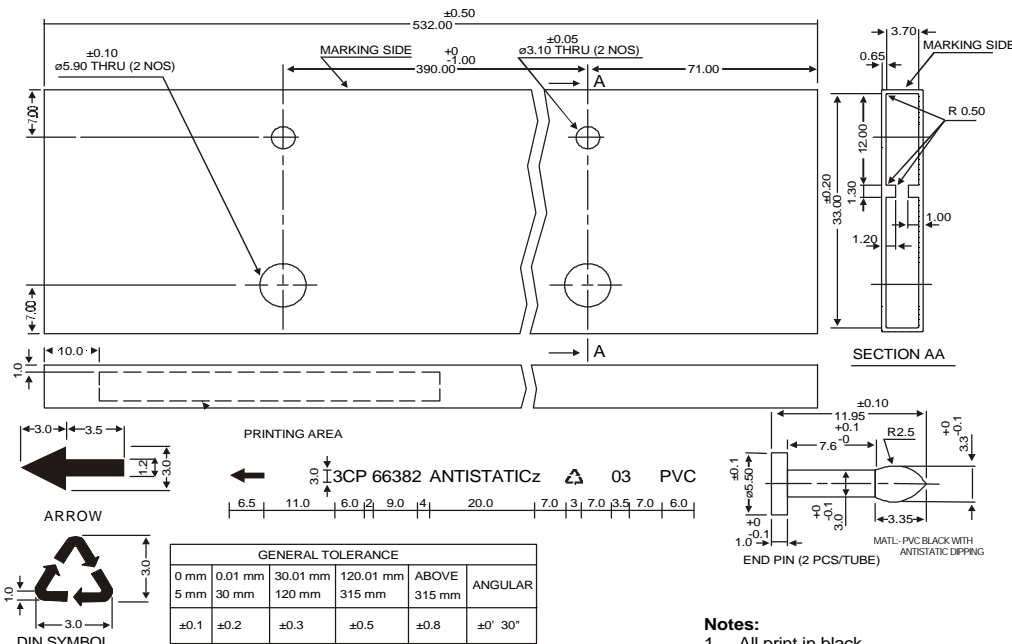
All dimensions in mm.



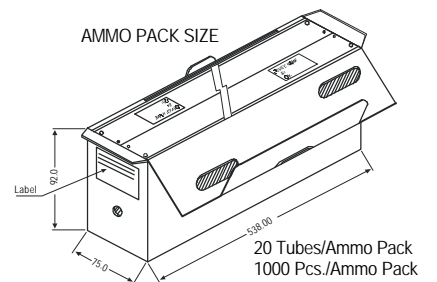
Pin Configuration

1. Emitter
2. Collector
3. Base

**TO-126 TUBE PACKING**



- Notes:**
1. All print in black.
  2. All text in Helvetica medium font.



**Packing Details**

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