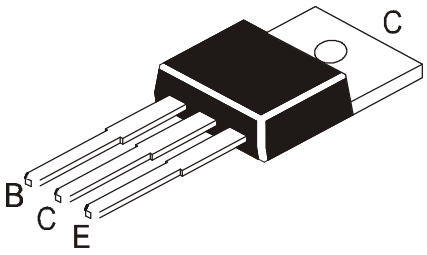
NPN SILICON POWER TRANSISTOR

CDT13003



TO-220
Plastic Package

Applications
Suitable for Lighting, Switching Regulator and Motor Control

ABSOLUTE MAXIMUM RATINGS

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	1.8	A
Peak (1)	I_{CM}	3.5	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 @ T_a=25 ºC	P_D	1.4	W
Derate Above 25ºC		11.2	mW/ ºC
Power Dissipation @ T_c=25 ºC	P_D	50	W
Derate Above 25ºC		480	mW/ ºC
Operating And Storage Junction Temperature Range	T_j, T_{stg}	- 65 to+150	ºC

THERMAL RESISTANCE

Junction to Case	$R_{th\ (j-c)}$	2.08	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

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

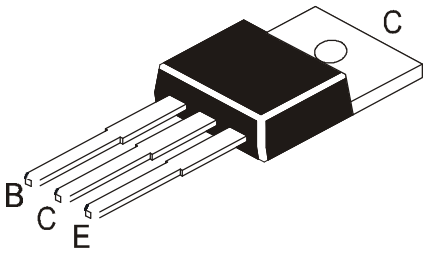
ELECTRICAL CHARACTERISTICS (T_a=25ºC unless specified otherwise)

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

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

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NPN SILICON POWER TRANSISTOR **CDT13003**



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ELECTRICAL CHARACTERISTICS (T_a=25ºC unless specified otherwise)

DESCRIPTION	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
DC Current Gain	*h_{FE}	**I_C=0.5A, V_{CE}=5V	11	-	30	
		I_C=1.5A, V_{CE}=5V	4	-	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

Turn On Time	t_{on}	V_{CC}=125V, I_C=1A, I_{B1}=0.2A, I_{B2}=0.2A			1.1	µs
Storage Time	t_{stg}				4.0	µs
Fall Time	t_f				0.7	µs

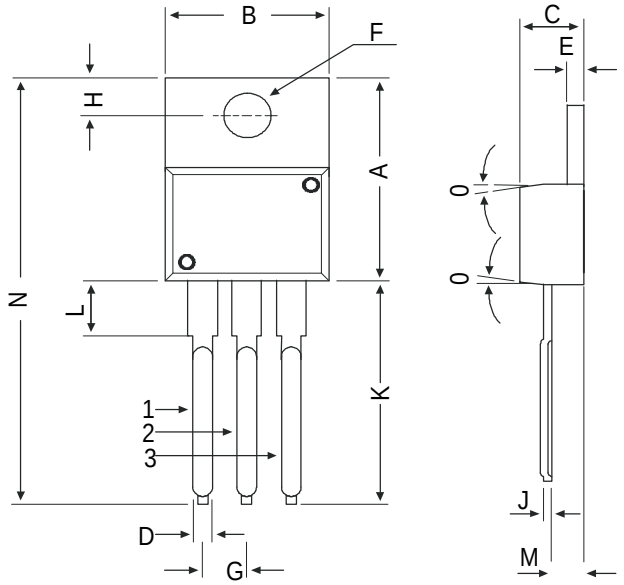
**** h_{FE} Classification:-**

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.	**A**	**B**	**C**	**E**	**F**
	11-16	**15-19**	**18-22**	**21-25**	**24-30**
MARKING	**CDT 13003 A XY**	**CDT 13003 B XY**	**CDT 13003 C XY**	**CDT 13003 E XY**	**CDT 13003 F XY**
X= Year of Manufacturer Code					
Y= Month Code					

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

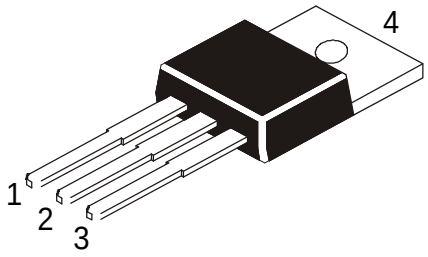
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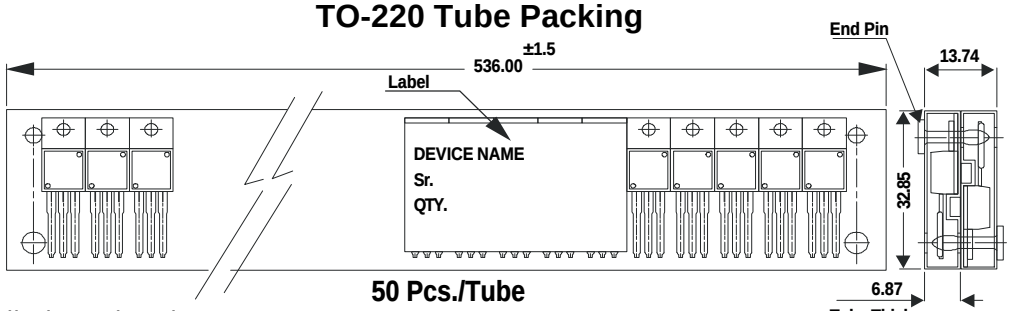
DIM	MIN	MAX
A	14.42	16.51
B	9.63	10.67
C	3.56	4.83
D	—	0.90
E	1.15	1.40
F	3.75	3.88
G	2.29	2.79
H	2.54	3.43
J	—	0.56
K	12.70	14.73
L	2.80	4.07
M	2.03	2.92
N	—	31.24
O	7 DEG	

All diminsions in mm.



Pin Configuration
1. Base
2. Collector
3. Emitter
4. Collector

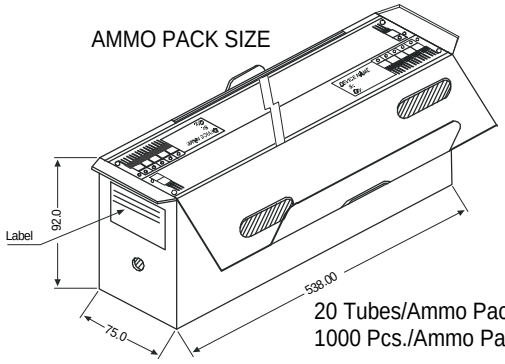
TO-220 Tube Packing



50 Pcs./Tube

All Dimensions in mm

AMMO PACK SIZE



20 Tubes/Ammo Pack
1000 Pcs./Ammo Pack

Packing Detail

PACKAGE	STANDARD PACK		INNER CARTON BOX		OUTER CARTON BOX		
	Details	Net Weight/Qty	Size	Qty	Size	Qty	Gr Wt
TO-220 / FP	200 pcs/polybag 50 pcs/tube	396 gm/200 pcs 120 gm/50 pcs	3" x 7.5" x 7.5" 3.5" x 3.7" x 21.5"	1.0K 1.0K	17" x 15" x 13.5" 19" x 19" x 19"	16.0K 10.0K	36 kgs 29 kgs

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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).

Customer Notes

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).

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