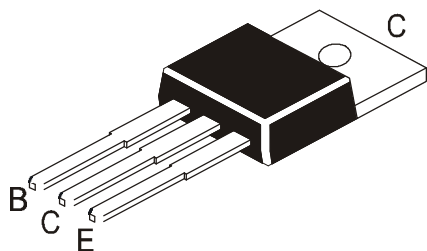


NPN PLASTIC POWER TRANSISTOR

CDL13005

TO-220
Plastic Package



Used in Energy Saving Lights and Power Switch Circuits

ABSOLUTE MAXIMUM RATINGS

DESCRIPTION	SYMBOL	VALUE	UNIT
Collector Base Voltage	V_{CBO}	700	V
Collector Emitter Voltage	V_{CEO}	400	V
Emitter Base Voltage	V_{EBO}	9	V
Collector Current Continuous	I_C	4	A
Power Dissipation upto $T_a=25^\circ\text{C}$	P_D	2	W
Power Dissipation upto $T_c=25^\circ\text{C}$	P_D	75	W
Operating And Storage Junction Temperature Range	T_j, T_{stg}	- 55 to +150	$^\circ\text{C}$

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

DESCRIPTION	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Collector Cut Off Current	I_{CBO}	$V_{CB}=700\text{V}, I_E=0$			0.1	mA
Emitter Cut Off Current	I_{EBO}	$V_{EB}=9\text{V}, I_C=0$			0.1	mA
DC Current Gain	$*h_{FE}$	$I_C=1\text{A}, V_{CE}=5\text{V}$	10		50	
Ratio Between h_{FE1} of Low Current and h_{FE2} of High Current	h_{FE1}/h_{FE2}	$h_{FE1} I_C=5\text{mA}, V_{CE}=5\text{V}$ $h_{FE2} I_C=1\text{A}, V_{CE}=5\text{V}$	0.75			
Collector Emitter Saturation Voltage	$*V_{CE(sat)}$	$I_C=2\text{A}, I_B=0.5\text{A}$			0.6	V
Base Emitter Saturation Voltage	$*V_{BE(sat)}$	$I_C=2\text{A}, I_B=0.5\text{A}$			1.5	V
Transition Frequency	f_T	$V_{CE}=10\text{V}, I_C=500\text{mA}, f=1\text{MHz}$	5			MHz

Switching Time

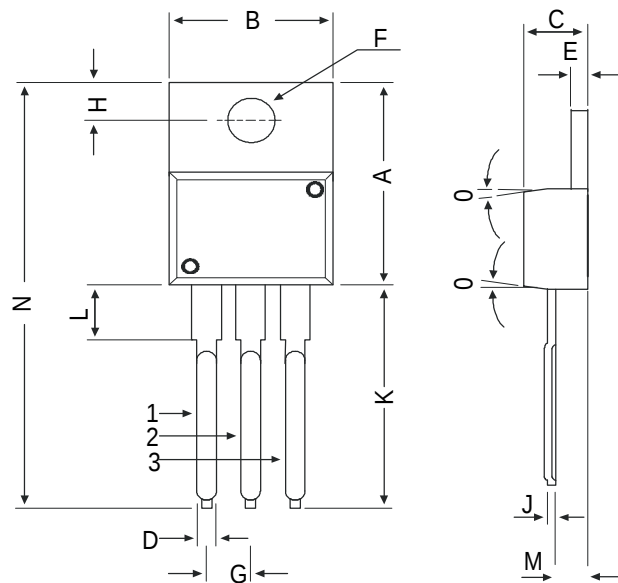
DESCRIPTION	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Fall Time	t_f	$I_C=2\text{A}, I_{B1}=-I_{B2}=0.4\text{A}$ $V_{CC}=120\text{V}$			0.8	μs
Storage Time	t_s				3.6	μs

$*h_{FE}$ Classification	A : 10 - 21	B : 20 - 31	C : 30 - 41	E : 40 - 50
Marking	CDL	CDL	CDL	CDL
Product is pre-selected in DC Current	13005	13005	13005	13005
Gain (Groups A to E). CDIL reserves the right to ship any of the group(s) to customers depending on production availability.	A XX	B XX	C XX	E XX
XX=date code				

*Pulse Test $t_p \leq 300\text{ms}$, Duty Cycle $\leq 2\%$

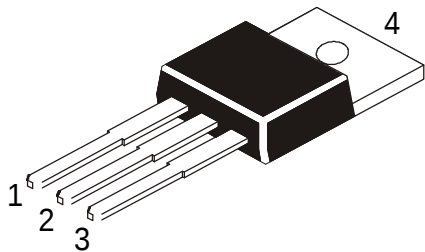
CDL13005Rev_3 020304E

TO-220 Plastic Package



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	

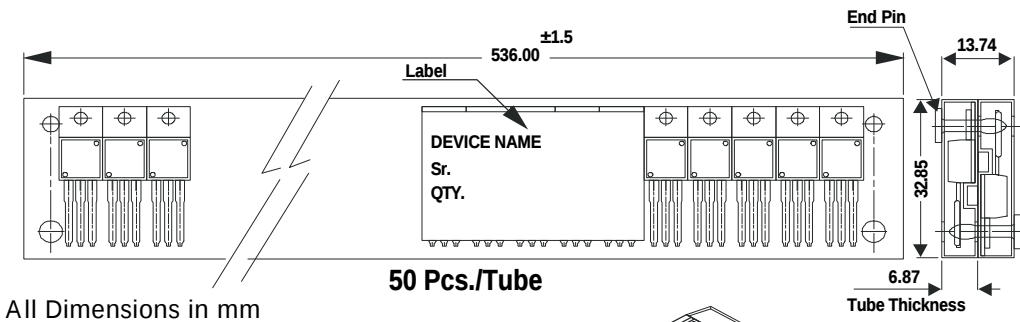
All diminsions in mm.



Pin Configuration

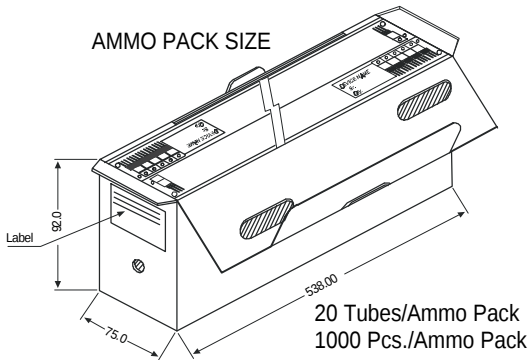
- 1. Base
- 2. Collector
- 3. Emitter
- 4. Collector

TO-220 Tube Packing



50 Pcs./Tube

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	396 gm/200 pcs	3" x 7.5" x 7.5"	1.0K	17" x 15" x 13.5"	16.0K	36 kgs
	50 pcs/tube	120 gm/50 pcs	3.5" x 3.7" x 21.5"	1.0K	19" x 19" x 19"	10.0K	29 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 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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