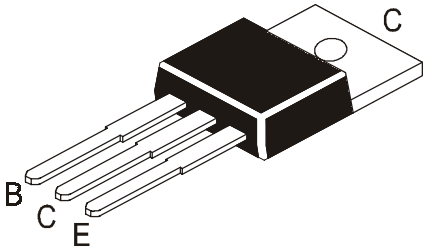
Continental Device India Limited

An IS/ISO 9002 and IECQ Certified Manufacturer

IS/ISO 9002
Lic# QSC/L- 000019.2

NPN SILICON POWER TRANSISTOR

CD13005



TO-220
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	2	A
Peak (1)	I_{CM}	4	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 @ Tc=25ºC	P_D	60	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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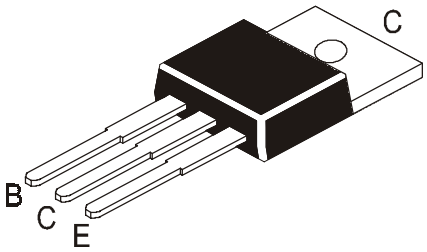

TO-220
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ELECTRICAL CHARACTERISTICS (Ta=25ºC Unless Otherwise Specified)

DESCRIPTION	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
DC Current Gain	hFE*	I_C=0.5A, V_{CE}=5V (1) Note	8.0	-	40	
		I_C=2A,V_{CE}=5V	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	-	-	2.5	V
		I_C=1A, I_B=0.25A,TC=100^o C	-	-	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
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						
Turn on Time	t_{on}	V_{CC}=125V			1.1	µs
Fall Time	tf	I_{B1}=0.2A,I_{B2}=0.2A	-	-	0.7	µs
Storage Time	t_{stg}	I_C=1A	-	-	4.0	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	**CDA 13005**	**CDB 13005**	**CDC 13005**	**CDE 13005**	**C D F 13005**

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

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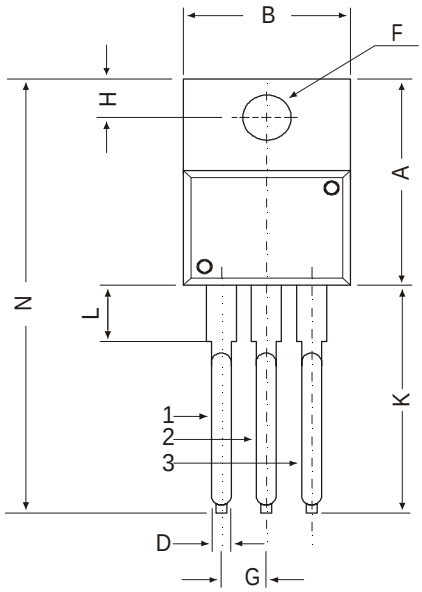
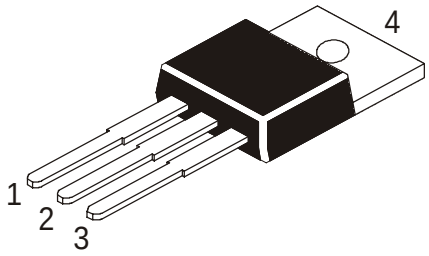


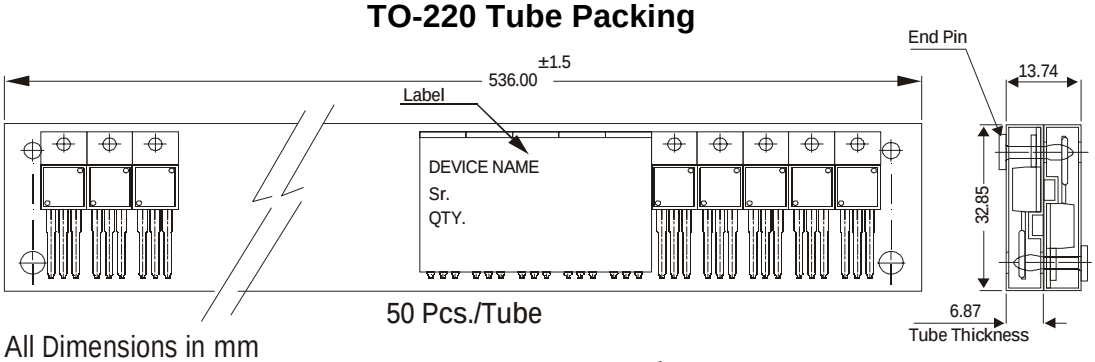
DIM	MIN	MAX
A	14.42	16.51
B	9.63	10.67
C	3.56	4.83
D	—	0.90
E	1.15	1.40
F	3.75	3.88
G	2.29	2.79
H	2.54	3.43
J	—	0.56
K	12.70	14.73
L	2.80	4.07
M	2.03	2.92
N	—	31.24
O	7 DEG	

All diminsions in mm.



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

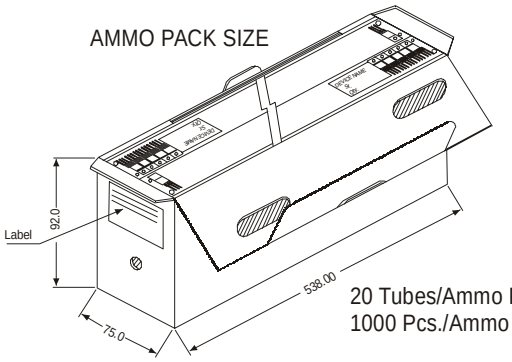
TO-220 Tube Packing



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	200 pcs/polybag 50 pcs/tube	396 gm/200 pcs 135 gm/50 pcs	3" x 7.5" x 7.5" 3.5" x 3.7" x 21.5"	1K 1K	17" x 15" x 13.5" 19" x 19" x 19"	16K 10K	36 kgs 28 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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