



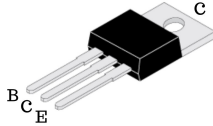
Continental Device India Pvt. Limited

An IATF 16949, ISO9001 and ISO 14001 Certified Company



NPN PLASTIC POWER TRANSISTORS PNP PLASTIC POWER TRANSISTORS

**2N6486, 6487, 6488
2N6489, 6490, 6491**



TO-220

**TO-220
Surface Mount
Plastic Package
RoHS compliant**

APPLICATIONS: General Purpose Amplifier and Switching Applications

ABSOLUTE MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

Parameter	Symbol	Value	6486	6487	6488	Unit
			6489	6490	6491	
Collector-base voltage (open emitter)	V_{CBO}	Max	50	70	90	V
Collector-emitter voltage (open base)	V_{CEO}	Max	40	60	80	V
Collector current	I_C	Max		15		A
Junction temperature	T_j	Max		150		$^\circ\text{C}$
Emitter-base voltage (open collector)	V_{EBO}	Max		5		V
Base current	I_B	Max		5		A
Total power dissipation up to $T_C = 25^\circ\text{C}$	P_{tot}	Max		75		W
Derate above 25°C		Max		0.6		W/ $^\circ\text{C}$
Total power dissipation up to $T_A = 25^\circ\text{C}$	P_{tot}	Max		1.8		W
Derate above 25°C		Max		0.014		W/ $^\circ\text{C}$
Storage Temperature	T_{stg}			-65 to +150		$^\circ\text{C}$
THERMAL RESISTANCE						
From junction to ambient	$R_{th\ j-a}$			70		$^\circ\text{C/W}$
From junction to case	$R_{th\ j-c}$			1.67		

ELECTRICAL CHARACTERISTICS (Tamb = 25°C unless otherwise specified)

Parameter	Symbol	Test Condition	Value	6486	6487	6488	Unit
				6489	6490	6491	
Collector cutoff current	I_{CEO}	$I_B = 0; V_{CE} = 20 \text{ V}$	Max	1			mA
		$I_B = 0; V_{CE} = 30 \text{ V}$	Max		1		
		$I_B = 0; V_{CE} = 40 \text{ V}$	Max			1	
	I_{CEX}	$V_{EB(off)} = 1.5 \text{ V}; V_{CE} = 45 \text{ V}$	Max	500			μA
		$V_{EB(off)} = 1.5 \text{ V}; V_{CE} = 65 \text{ V}$	Max		500		
		$V_{EB(off)} = 1.5 \text{ V}; V_{CE} = 85 \text{ V}$	Max			500	
		$V_{EB(off)} = 1.5 \text{ V}; V_{CE} = 40 \text{ V}; T_C = 150^\circ\text{C}$	Max	5			mA
		$V_{EB(off)} = 1.5 \text{ V}; V_{CE} = 60 \text{ V}; T_C = 150^\circ\text{C}$	Max		5		
		$V_{EB(off)} = 1.5 \text{ V}; V_{CE} = 80 \text{ V}; T_C = 150^\circ\text{C}$	Max			5	
Emitter cut-off current	I_{EBO}	$I_C = 0; V_{EB} = 5 \text{ V}$	Max		1		mA
Breakdown voltages	$V_{CEO(sus)}^*$	$I_C = 200 \text{ mA}; I_B = 0$	Min	40	60	80	V
	V_{CBO}	$I_C = 1 \text{ mA}; I_E = 0$	Min	50	70	90	
	$V_{CEX(sus)}^*$	$I_C = 200 \text{ mA}; V_{BE} = 1.5 \text{ V}$	Min	50	70	90	
	V_{EBO}	$I_E = 1 \text{ mA}; I_C = 0$	Min		5		
Saturation voltages	V_{CEsat}^*	$I_C = 5 \text{ A}; I_B = 0.5 \text{ A}$	Max		1.3		V
		$I_C = 15 \text{ A}; I_B = 5 \text{ A}$	Max		3.5		
Base-emitter on voltage	$V_{BE(on)}^*$	$I_C = 5 \text{ A}; V_{CE} = 4 \text{ V}$	Max		1.3		V
		$I_C = 15 \text{ A}; V_{CE} = 4 \text{ V}$	Max		3.5		
D.C. current gain	h_{FE}^*	$I_C = 5 \text{ A}; V_{CE} = 4 \text{ V}$	Max		150		
			Min		20		
		$I_C = 15 \text{ A}; V_{CE} = 4 \text{ V}$	Min		5		
Transition frequency	$f_{T(1)}$	$I_C = 1 \text{ A}; V_{CE} = 4 \text{ V}; f = 1 \text{ MHz}$	Min		5		MHz
Small signal current gain	h_{fe}	$I_C = 1.0 \text{ A}; V_{CE} = 4 \text{ V}; f = 1.0 \text{ KHz}$	Min		25		

* Pulse test: pulse width $\leq 300 \mu\text{s}$; duty cycle $\leq 2\%$

(1) $f_T = |h_{fe}| \cdot f_{test}$



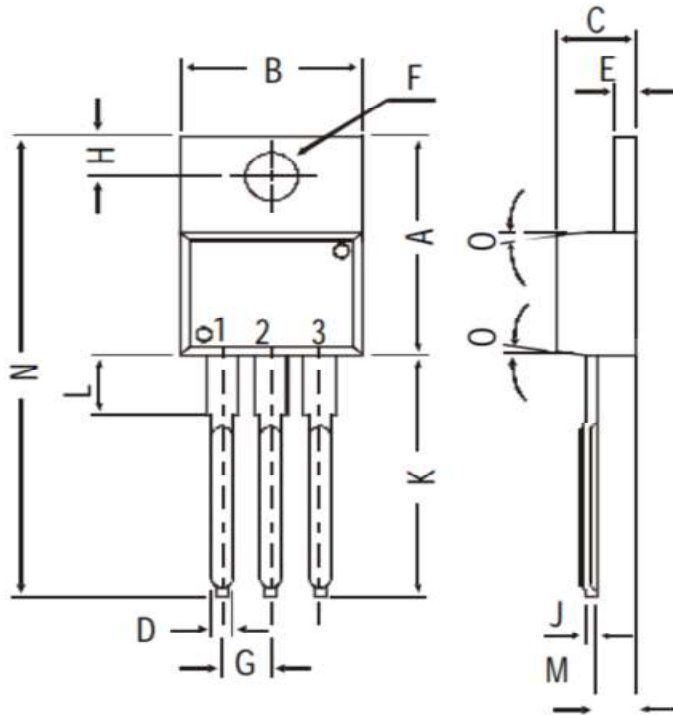
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Package Details

TO-220



All dimensions in mm.

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	DEG 7	



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Recommended Product Storage Environment for Discrete Semiconductor Devices

This storage environment assumes that the Diodes and transistors are packed properly inside the original packing supplied by CDIL.

- Temperature 5 °C to 30 °C
- Humidity between 40 to 70 %RH
- Air should be clean.
- Avoid harmful gas or dust.
- Avoid outdoor exposure or storage in areas subject to rain or water spraying .
- Avoid storage in areas subject to corrosive gas or dust. Product shall not be stored in areas exposed to direct sunlight.
- Avoid rapid change of temperature.
- Avoid condensation.
- Mechanical stress such as vibration and impact shall be avoided.
- The product shall not be placed directly on the floor.
- The product shall be stored on a plane area. They should not be turned upside down. They should not be placed against the wall.

Shelf Life of CDIL Products

The shelf life of products is the period from product manufacture to shipment to customers. The product can be unconditionally shipped within this period. The period is defined as 2 years.

If products are stored longer than the shelf life of 2 years the products shall be subjected to quality check as per CDIL quality procedure.

The products are further warranted for another one year after the date of shipment subject to the above conditions in CDIL original packing.

Floor Life of CDIL Products and MSL Level

When the products are opened from the original packing, the floor life will start.

For this, the following JEDEC table may be referred:

JEDEC MSL Level		
Level	Time	Condition
1	Unlimited	≤30 °C / 85% RH
2	1 Year	≤30 °C / 60% RH
2a	4 Weeks	≤30 °C / 60% RH
3	168 Hours	≤30 °C / 60% RH
4	72 Hours	≤30 °C / 60% RH
5	48 Hours	≤30 °C / 60% RH
5a	24 Hours	≤30 °C / 60% RH
6	Time on Label(TOL)	≤30 °C / 60% RH



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Customer Notes

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).

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).

CDIL strives for continuous improvement and reserves the right to change the specifications of its products without prior notice.



CDIL is a registered trademark of
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