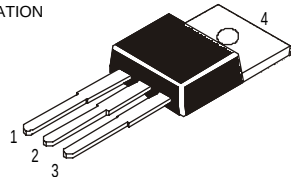
TO-220 Plastic Package

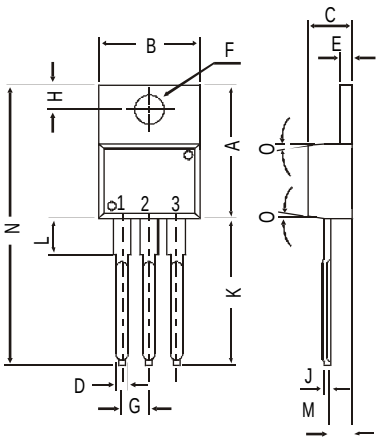
TIP110, TIP111, TIP112
TIP115, TIP116, TIP117

TIP 110, 111, 112 NPN PLASTIC POWER TRANSISTORS
TIP 115, 116, 117 PNP PLASTIC POWER TRANSISTORS

*General Purpose **Darlington** Amplifier and Low Speed Switching Applications*

PIN CONFIGURATION
1. BASE
2. COLLECTOR
3. EMITTER
4. COLLECTOR





All diminsions 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	

ABSOLUTE MAXIMUM RATINGS

			110 ***115***	***111*** ***116***	***112*** ***117***	
Collector-base voltage (open emitter)	V_{CBO}	*max.*	*60*	*80*	*100*	*V*
Collector-emitter voltage (open base)	V_{CEO}	*max.*	*60*	*80*	*100*	*V*
Collector current	I_C	*max.*		*2.0*		*A*
Total power dissipation up to T_C = 25°C	P_{tot}	*max.*		*50*		*W*
Junction temperature	T_j	*max.*		*150*		*°C*
Collector-emitter saturation voltage						
I_C = 2 A; I_B = 8 mA	V_{CEsat}	*max.*		*2.5*		*V*
D.C. current gain						
I_C = 1 A; V_{CE} = 4 V	h_{FE}	*min.*		*1000*		

RATINGS *(at T_A=25°C unless otherwise specified)*

Limiting values			***110*** ***115***	***111*** ***116***	***112*** ***117***	
Collector-base voltage (open emitter)	V_{CBO}	*max.*	*60*	*80*	*100*	*V*
Collector-emitter voltage (open base)	V_{CEO}	*max.*	*60*	*80*	*100*	*V*
Emitter-base voltage (open collector)	V_{EBO}	*max.*		*5.0*		*V*

Collector current	I_C	*max.*	*2.0*	*A*
Collector current (Peak)	I_{CM}	*max.*	*4.0*	*A*
Base current	I_B	*max.*	*50*	*mA*
Total power dissipation up to T_C = 25°C	P_{tot}	*max.*	*50*	*W*
Total power dissipation up to T_A = 25°C	P_{tot}	*max.*	*2.0*	*W*
Junction temperature	T_j	*max.*	*150*	*°C*
Storage temperature	T_{stg}		*–65 to +150*	*°C*

THERMAL RESISTANCE

From junction to case	$R_{th\ j-c}$	*2.5*	*°C/W*
From junction to ambient	$R_{th\ j-a}$	*62.5*	*°C/W*

CHARACTERISTICS

T_{amb} = 25°C unless otherwise specified

			110	***111***	***112***	
			115	***116***	***117***	
Collector cutoff current						
I_B = 0; V_{CE} = half rated V_{CEO}	I_{CEO}	*max.*		*2.0*		*mA*
I_E = 0; V_{CB} = rated V_{CBO}	I_{CBO}	*max.*		*1.0*		*mA*
Emitter cut-off current						
I_C = 0; V_{EB} = 5 V	I_{EBO}	*max.*		*2.0*		*mA*
Breakdown voltages						
I_C = 30 mA; I_B = 0	$V_{CEO(sus)}$*	*min.*	*60*	*80*	*100*	*V*
I_C = 1 mA; I_E = 0	V_{CBO}	*min.*	*60*	*80*	*100*	*V*
I_E = 1 mA; I_C = 0	V_{EBO}	*min.*		*5.0*		*V*
Saturation voltage						
I_C = 2 A; I_B = 8 mA	V_{CEsat}*	*max.*		*2.5*		*V*
Base-emitter on voltage						
I_C = 2 A; V_{CE} = 4 V	$V_{BE(on)}$*	*max.*		*2.8*		*V*
D.C. current gain						
I_C = 1 A; V_{CE} = 4 V	h_{FE}*	*min.*		*1000*		
I_C = 2 A; V_{CE} = 4 V	h_{FE}*	*min.*		*500*		

** Pulse test: pulse duration = 300 µs, duty cycle ≤ 2%.*

Notes

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 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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CDIL is a registered Trademark of
Continental Device India Limited
C-120 Naraina Industrial Area, New Delhi 110 028, India.
Telephone + 91-11-579 6150 Fax + 91-11-579 9569, 579 5290
e-mail sales@cdil.com www.cdil.com