

**TO-220 Plastic Package**

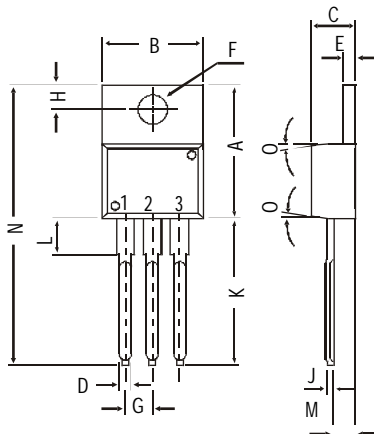
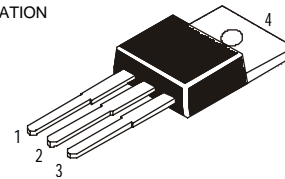
**2N6101**

**2N6101 NPN PLASTIC POWER TRANSISTOR**

Medium Power Linear and Switching Service in Consumer, Automotive, and Industrial Applications

**PIN CONFIGURATION**

- 1. BASE
- 2. COLLECTOR
- 3. EMITTER
- 4. COLLECTOR



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	

**ABSOLUTE MAXIMUM RATINGS**

- Collector-base voltage (open emitter)
- Collector-emitter voltage (open base)
- Collector current
- Total power dissipation up to  $T_C = 25^\circ\text{C}$
- Junction temperature
- Collector-emitter saturation voltage  
 $I_C = 10\text{ A}; I_B = 2\text{ A}$
- D.C. current gain  
 $I_C = 5\text{ A}; V_{CE} = 4\text{ V}$

$V_{CB0}$	max.	80 V
$V_{CE0}$	max.	70 V
$I_C$	max.	10 A
$P_{tot}$	max.	75 W
$T_j$	max.	150 °C
$V_{CEsat}$	max.	2.5 V
$h_{FE}$	min.	20
	max.	80

**RATINGS** (at  $T_A=25^\circ\text{C}$  unless otherwise specified)

- Limiting values
- Collector-base voltage (open emitter)
- Collector-emitter voltage (open base)
- Collector-emitter voltage ( $R_{BE} = 100\Omega$ )
- Emitter-base voltage (open collector)
- Collector current
- Base current

$V_{CB0}$	max.	80 V
$V_{CE0}$	max.	70 V
$V_{CER}$	max.	75 V
$V_{EBO}$	max.	8.0 V
$I_C$	max.	10 A
$I_B$	max.	4 A

## 2N6101

Total power dissipation up to $T_C = 25^\circ\text{C}$	$P_{tot}$	max.	75 W
Derate above $25^\circ\text{C}$		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 $25^\circ\text{C}$		max.	0.0144 W/ $^\circ\text{C}$
Junction temperature	$T_j$	max.	150 $^\circ\text{C}$
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 $^\circ\text{C/W}$

### CHARACTERISTICS

$T_{amb} = 25^\circ\text{C}$  unless otherwise specified

#### Collector cutoff current

$V_{BE} = 1.5\text{ V}; V_{CE} = 75\text{ V}$

$V_{BE} = 1.5\text{ V}; V_{CE} = 75\text{ V}; T_C = 150^\circ\text{C}$

$I_B = 0; V_{CE} = 60\text{ V}$

#### Emitter cut-off current

$I_C = 0; V_{EB} = 8\text{ V}$

#### Breakdown voltages

$I_C = 200\text{ mA}; I_B = 0$

$I_C = 1\text{ mA}; I_E = 0$

$I_E = 1\text{ mA}; I_C = 0$

#### Saturation voltage

$I_C = 10\text{ A}; I_B = 2\text{ A}$

#### Base emitter on voltage

$I_C = 5\text{ A}; V_{CE} = 4\text{ V}$

#### D.C. current gain

$I_C = 5\text{ A}; V_{CE} = 4\text{ V}$

$I_C = 10\text{ A}; V_{CE} = 4\text{ V}$

#### Small signal current gain

$I_C = 0.5\text{ A}; V_{CE} = 4\text{ V}; f = 0.1\text{ MHz}$

$I_C = 0.5\text{ A}; V_{CE} = 4\text{ V}; f = 1\text{ KHz}$

$I_{CEX}$	max.	2.0 mA
$I_{CEX}$	max.	10 mA
$I_{CEO}$	max.	2.0 mA

$I_{EBO}$	max.	1.0 mA
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$V_{CEO(sus)}^*$	min.	70 V
$V_{CBO}$	min.	80 V
$V_{EBO}$	min.	8.0 V

$V_{CEsat}^*$	max.	2.5 V
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$V_{BE(on)}^*$	max.	1.7 V
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$h_{FE}^*$	min.	20
	max.	80

$h_{FE}^*$	min.	5.0
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$ h_{fe} $	min.	8.0
	max.	28

$h_{fe}$	min.	15
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\* Pulsed: pulse duration = 300  $\mu\text{s}$ ; Duty factor = 0.018.

## Notes

### Disclaimer

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**Continental Device India Limited**

C-120 Naraina Industrial Area, New Delhi 110 028, India.  
Telephone + 91-11-2579 6150, 5141 1112 Fax + 91-11-2579 5290, 5141 1119  
email@cdil.com www.cdilsemi.com