



JIANGSU CHANGJIANG ELECTRONICS TECHNOLOGY CO., LTD

TO-251 Plastic-Encapsulate Transistors

3DD13001

TRANSISTOR (NPN)

FEATURES

Power dissipation

P_{CM} : 1.2 W ($T_{amb}=25$)

Collector current

I_{CM} : 0.2 A

Collector-base voltage

$V_{(BR)CBO}$: 600 V

Operating and storage junction temperature range

T_J, T_{stg} : -55 to +150

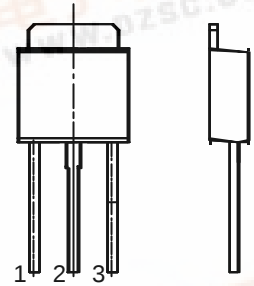
ELECTRICAL CHARACTERISTICS ($T_{amb}=25$ unless otherwise specified)

TO—251

1.BASE

2.COLLECTOR

3.EMITTER



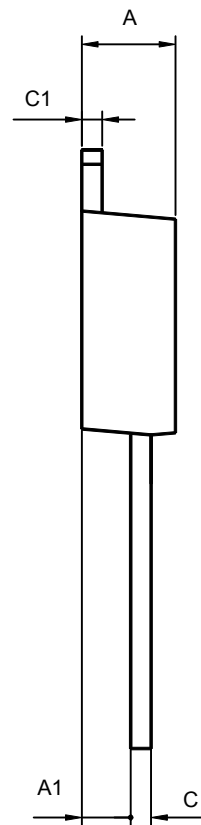
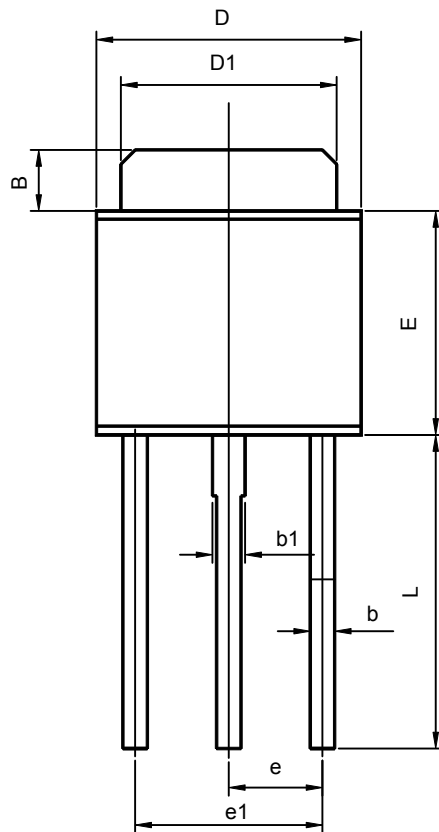
Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C = 100 \mu A, I_E = 0$	600			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = 1 mA, I_B = 0$	400			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E = 100 \mu A, I_C = 0$	7			V
Collector cut-off current	I_{CBO}	$V_{CB} = 600 V, I_E = 0$			100	μA
Collector cut-off current	I_{CEO}	$V_{CE} = 400 V, I_B = 0$			200	μA
Emitter cut-off current	I_{EBO}	$V_{EB} = 7 V, I_C = 0$			100	μA
DC current gain	$h_{FE(1)}$	$V_{CE} = 20 V, I_C = 20 mA$	10		40	
	$h_{FE(2)}$	$V_{CE} = 10 V, I_C = 0.25 mA$	5			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 50 mA, I_B = 10 mA$			0.5	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = 50 mA, I_B = 10 mA$			1.2	V
Base-emitter voltage	V_{BE}	$I_E = 100 mA$			1.1	V
Transition frequency	f_T	$V_{CE} = 20 V, I_C = 20 mA$ $f = 1 MHz$	8			MHz
Fall time	t_f	$I_C = 50 mA, I_{B1} = -I_{B2} = 5 mA$			0.3	μs
Storage time	t_s	$V_{CC} = 45 V$			1.5	μs

CLASSIFICATION OF $h_{FE(1)}$

Rank	10-15	15-20	20-25	25-30	30-35	35-40
Range	10-15	15-20	20-25	25-30	30-35	35-40



TO-251 PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	2.200	2.400	0.087	0.094
A1	1.020	1.270	0.040	0.050
B	1.350	1.650	0.053	0.065
b	0.500	0.700	0.020	0.028
b1	0.700	0.900	0.028	0.035
c	0.430	0.580	0.017	0.023
c1	0.430	0.580	0.017	0.023
D	6.350	6.650	0.250	0.262
D1	5.200	5.400	0.205	0.213
E	5.400	5.700	0.213	0.224
e	2.300TYP		0.091TYP	
e1	4.500	4.700	0.177	0.185
L	7.500	7.900	0.295	0.311