



TO-220 Plastic-Encapsulate Transistors

3DD13007 TRANSISTOR (NPN)

FEATURES

Power dissipation

$$P_{CM} : 2 \text{ W (} T_{amb}=25 \text{)}$$

Collector current

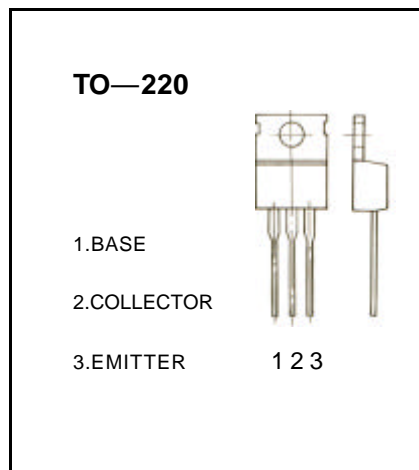
$$I_{CM} : 8 \text{ A}$$

Collector-base voltage

$$V_{(BR)CBO} : 700 \text{ V}$$

Operating and storage junction temperature range

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



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

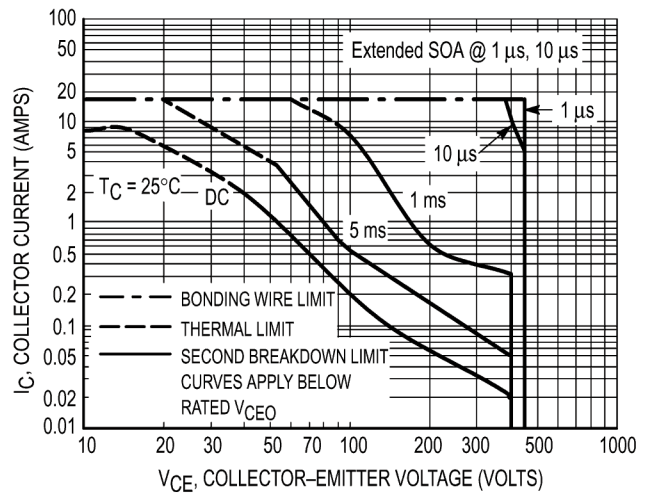
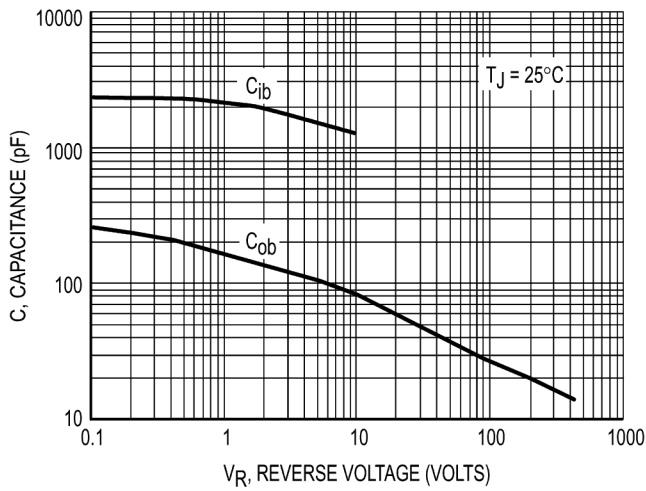
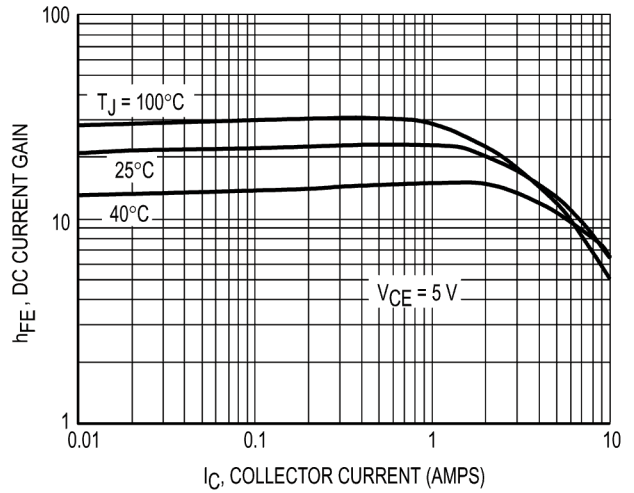
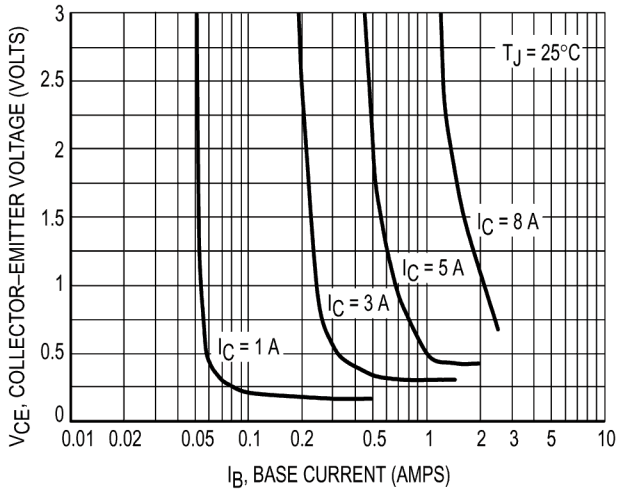
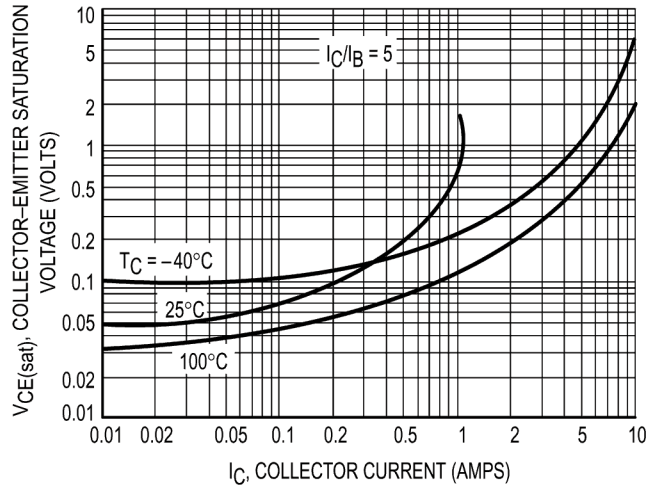
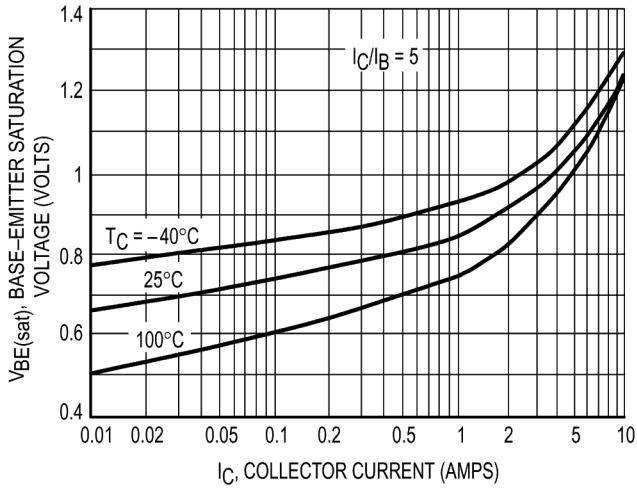
Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=1\text{mA}, I_E=0$	700			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=10\text{mA}, I_B=0$	400			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=1\text{mA}, I_C=0$	9			V
Collector cut-off current	I_{CBO}	$V_{CB}=700\text{V}, I_E=0$			1	mA
Emitter cut-off current	I_{EBO}	$V_{EB}=9\text{V}, I_C=0$			100	μA
DC current gain	$h_{FE(1)}$	$V_{CE}=5\text{V}, I_C=2\text{A}$	8		40	
	$h_{FE(2)}$	$V_{CE}=5\text{V}, I_C=5\text{A}$	5		30	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=2\text{A}, I_B=0.4\text{A}$			1	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C=2\text{A}, I_B=0.4\text{A}$			1.2	V
Transition frequency	f_T	$I_C=500\text{mA}, V_{CE}=10\text{V}$ $f=1\text{MHz}$	4			MHz
Collector output capacitance	C_{ob}	$V_{CE}=10\text{V}, I_E=0, f=0.1\text{MHz}$		80		pF
Fall time	t_f	$V_{CC}=125\text{V}, I_C=5\text{A}$			0.7	μs
Storage time	t_s	$I_{B1}=-I_{B2}=1\text{A}$			3	μs

CLASSIFICATION OF $h_{FE(1)}$

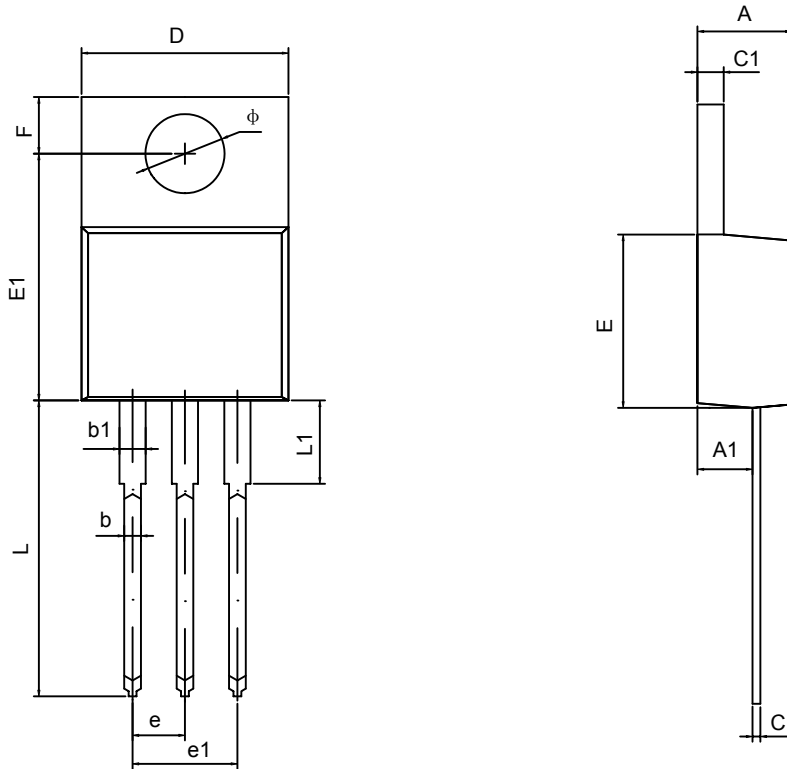
Rank						
Range	8-15	15-20	20-25	25-30	30-35	35-40

Typical Characteristics

3DD13007



TO-220-3L PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	4.470	4.670	1.176	0.184
A1	2.520	2.820	0.099	0.111
b	0.710	0.910	0.028	0.036
b1	1.170	1.370	0.046	0.054
c	0.310	0.530	0.012	0.021
c1	1.710	1.370	0.046	0.054
D	10.010	10.310	0.394	0.406
E	8.500	8.900	0.335	0.350
E1	12.060	12.460	0.475	0.491
e	2.540TYP		0.100TYP	
e1	4.980	5.180	0.196	0.204
F	2.590	2.890	0.102	0.114
L	13.400	13.800	0.528	0.543
L1	3.560	3.960	0.140	0.156
ϕ	3.790	3.890	0.149	0.153