



SHENZHEN HAOLIN ELECTRONICS TECHNOLOGY CO., LTD  
**TO-220 Plastic-Encapsulate Transistors**

**HP13007L** (CA0 ) TRANSISTOR ( NPN )

**FEATURES**

Power dissipation ( NPN )

$P_{CM} : 2.0 \text{ W}$  (  $T_{amb}=25$  )

Collector current

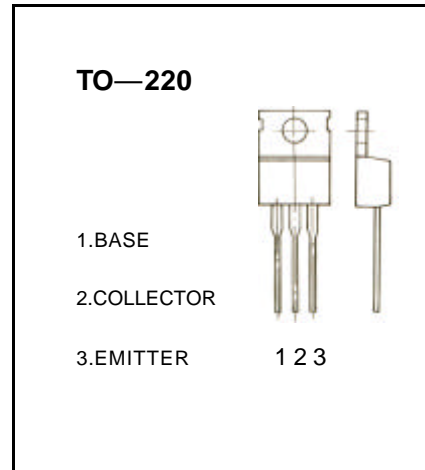
$I_{CM} : 6 \text{ A}$

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 )**

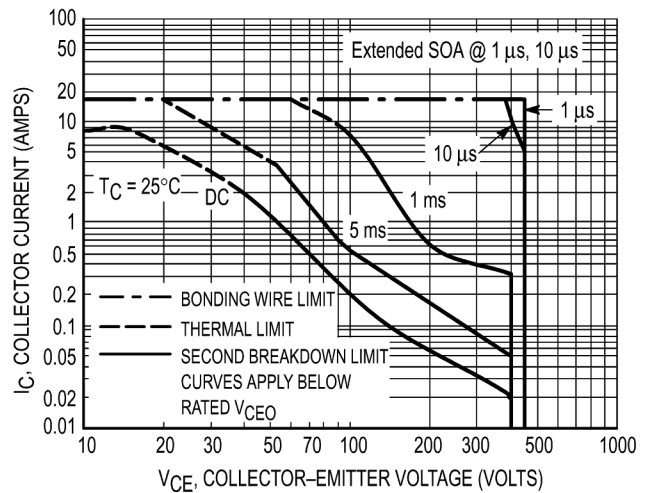
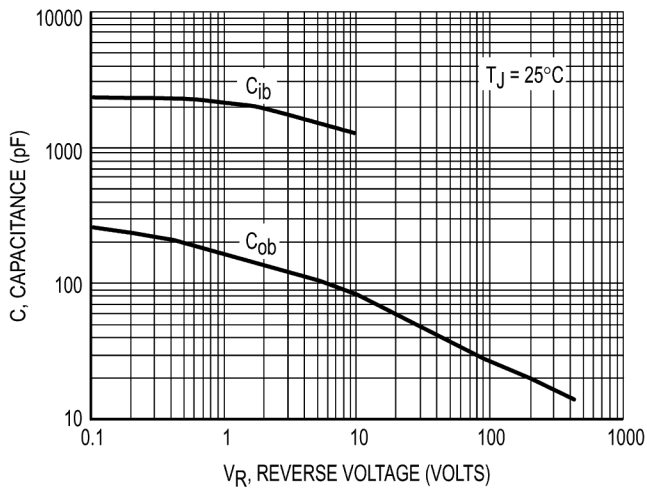
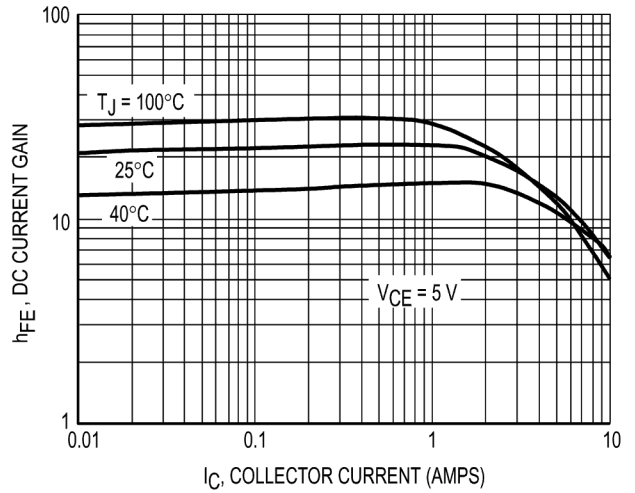
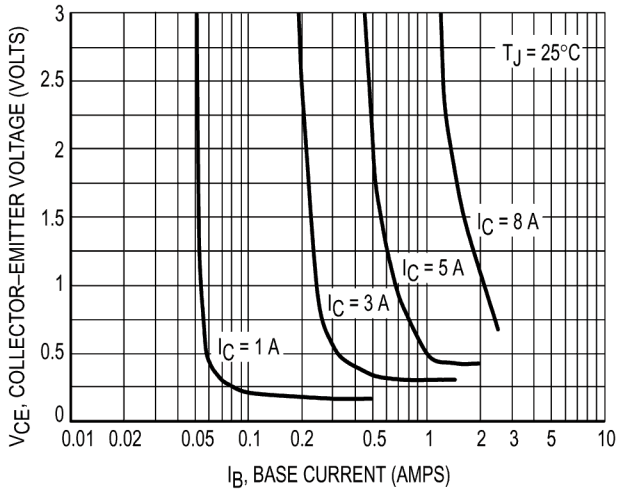
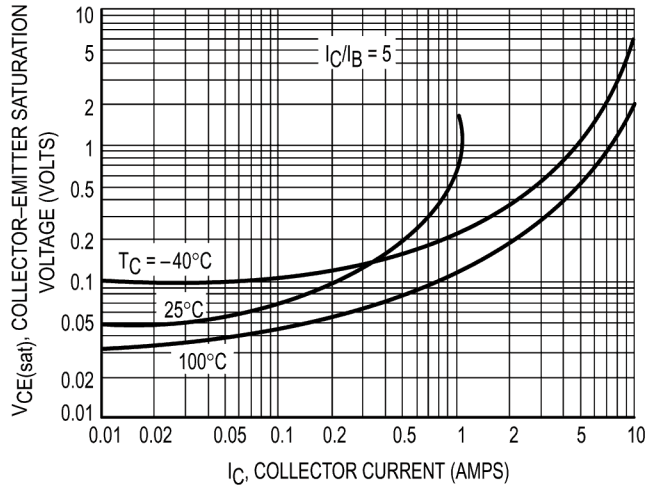
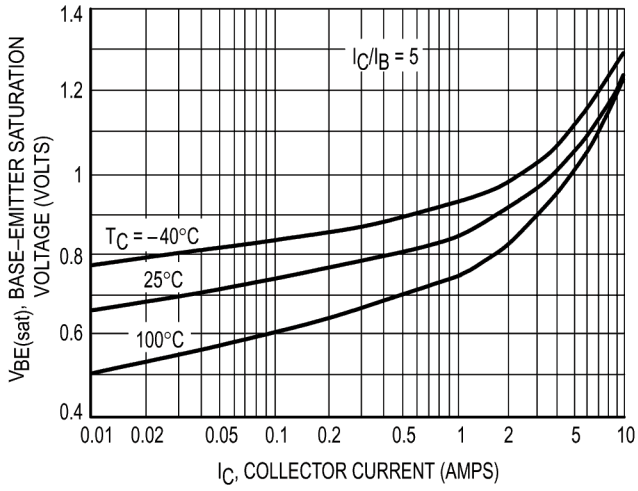
Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C = 1 \text{ mA}, I_E = 0$	700			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = 10 \text{ mA}, I_B = 0$	400			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E = 1 \text{ mA}, I_C = 0$	9			V
Collector cut-off current	$I_{CBO}$	$V_{CB} = 700 \text{ V}, I_E = 0$			100	$\mu\text{A}$
Emitter cut-off current	$I_{EBO}$	$V_{EB} = 9 \text{ V}, I_C = 0$			100	$\mu\text{A}$
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	$t_f$	$I_C = 0.5 \text{ A}$			0.7	$\mu\text{s}$
Storage time	$t_s$	$I_{B1} = -I_{B2} = 0.5 \text{ A}$	2		12	$\mu\text{s}$

**CLASSIFICATION OF  $h_{FE(1)}$**

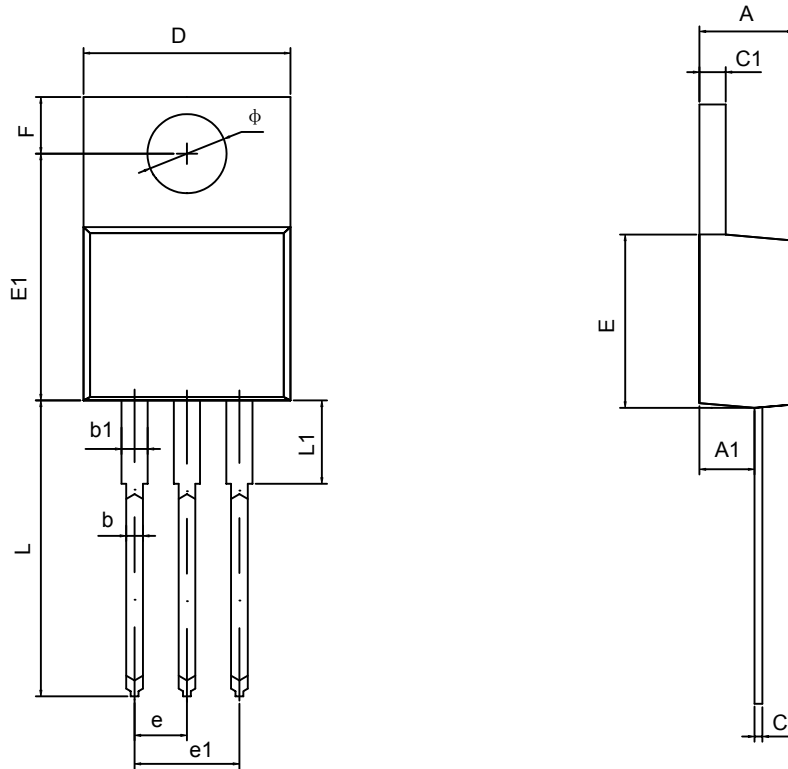
Rank						
Range	8-15	15-20	20-25	25-30	30-35	35-40

# Typical Characteristics

HP13007L



## 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
$\phi$	3.790	3.890	0.149	0.153