



TO-92 Plastic-Encapsulate Transistors

M8050

TRANSISTOR (NPN)

FEATURES

Power dissipation

 $P_{CM} : 0.625 \text{ W (Tamb=25}^{\circ}\text{C)}$

Collector current

 $I_{CM} : 1 \text{ A}$

Collector-base voltage

 $V_{(BR)CBO} : 40 \text{ V}$

Operating and storage junction temperature range

 $T_J, T_{stg} : -55^{\circ}\text{C to } +150^{\circ}\text{C}$ **TO-92**

1.EMITTER

2. BASE

3. COLLECTOR

**ELECTRICAL CHARACTERISTICS (Tamb=25°C unless otherwise specified)**

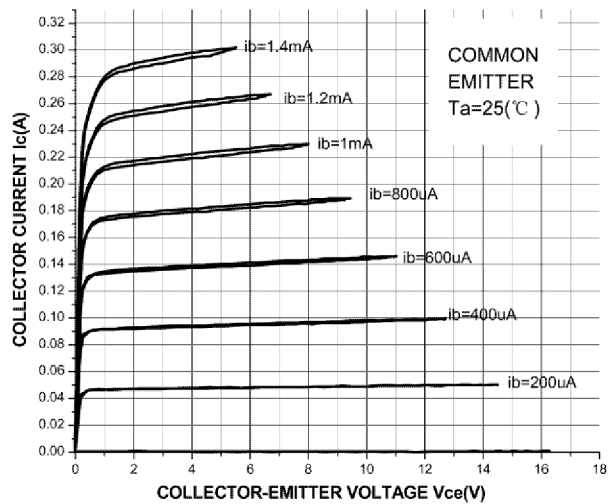
Parameter	Symbol	Test conditions	MIN	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C = 100 \mu\text{A}, I_E = 0$	40		V
Collector-emitter breakdown voltage	$V_{(BR)CEO}^*$	$I_C = 0.1\text{mA}, I_B = 0$	25		V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E = 100 \mu\text{A}, I_C = 0$	6		V
Collector cut-off current	I_{CBO}	$V_{CB} = 35\text{V}, I_E = 0$		0.1	μA
Collector cut-off current	I_{CEO}	$V_{CE} = 20\text{V}, I_B = 0$		0.1	μA
DC current gain	$h_{FE(1)}$	$V_{CE} = 1\text{V}, I_C = 5\text{mA}$	45		
	$h_{FE(2)}$	$V_{CE} = 1\text{V}, I_C = 100\text{mA}$	80	300	
	$h_{FE(3)}$	$V_{CE} = 1\text{V}, I_C = 800\text{mA}$	40		
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 800\text{mA}, I_B = 80\text{mA}$		0.5	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = 800\text{mA}, I_B = 80\text{mA}$		1.2	V
Transition frequency	f_T	$V_{CE} = 6\text{V}, I_C = 20\text{mA}, f = 30\text{MHz}$	150		MHz

* Pulse Test : pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$

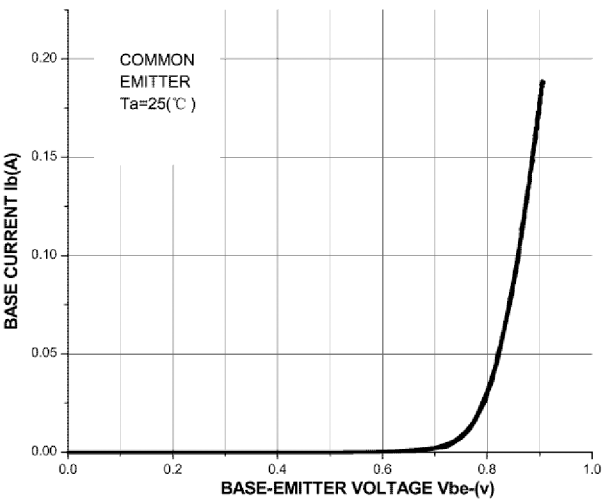
Typical Characteristics

M8050

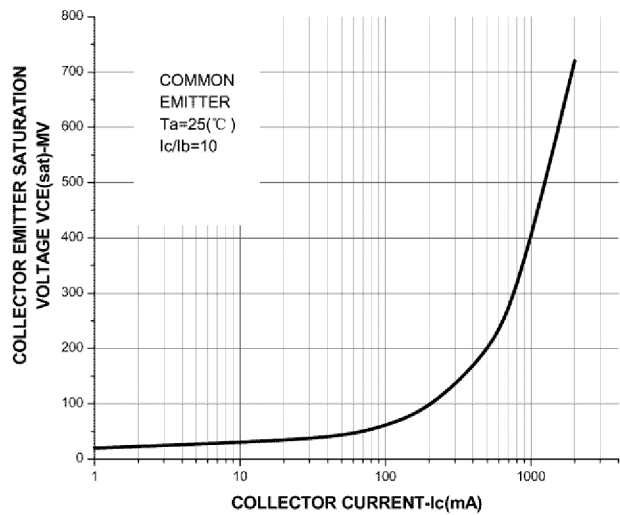
Ic-Vce



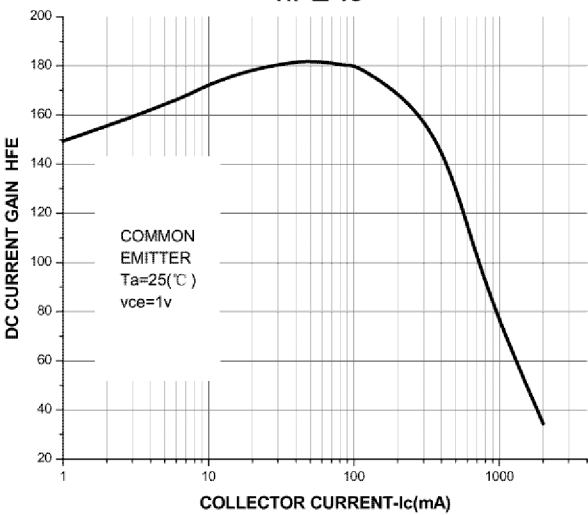
Ib-Vbe



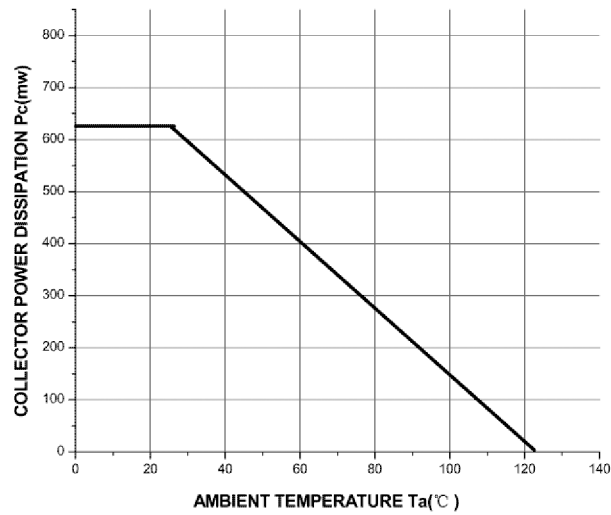
Vcesat-Ic



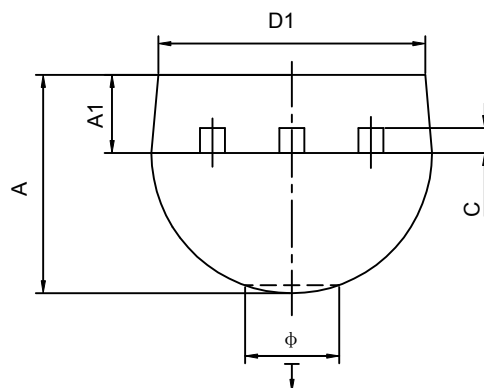
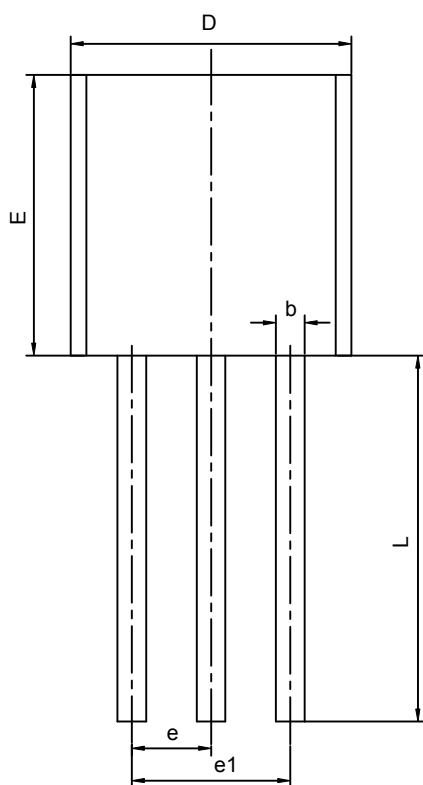
hFE-Ic



Pc-Ta



TO-92 PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	3.300	3.700	0.130	0.146
A1	1.100	1.400	0.043	0.055
b	0.380	0.550	0.015	0.022
c	0.360	0.510	0.014	0.020
D	4.400	4.700	0.173	0.185
D1	3.430		0.135	
E	4.300	4.700	0.169	0.185
e	1.270TYP		0.050TYP	
e1	2.440	2.640	0.096	0.104
L	14.100	14.500	0.555	0.571
Ö		1.600		0.063
$\downarrow$	0.000	0.380	0.000	0.015