

PNP PLASTIC ENCAPSULATE TRANSISTORS

 Lead(Pb)-Free

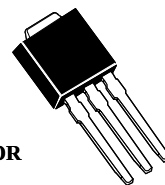
Features:

* Low $V_{CE(sat)}$. $V_{CE(sat)} = -0.5V$ (Typ.) ($I_C/I_B = -2A / -0.2A$)

MAXIMUM RATINGS ($T_A=25^{\circ}C$ unless otherwise noted)

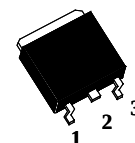
Parameter	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	-60	V
Collector-Emitter Voltage	V_{CEO}	-50	V
Emitter-Base Voltage	V_{EBO}	-5	V
Collector Current –Continuous	I_C	-3	A
Collector Power Dissipation	P_C	1	W
Junction Temperature	T_j	+150	$^{\circ}C$
Storage Temperature Range	T_{stg}	-55 to +150	$^{\circ}C$

1.BASE
2.COLLECTOR
3.EMITTER



TO-251

1.BASE
2.COLLECTOR
3.EMITTER



D-PAK(TO-252)

ELECTRICAL CHARACTERISTICS ($T_{amb}=25^{\circ}C$ unless otherwise specified)

Parameter	Symbol	Test Conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C = -50\mu A, I_E = 0$	-60			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = -1mA, I_B = 0$	-50			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E = -50\mu A, I_C = 0$	-5			V
Collector cut-off current	I_{CBO}	$V_{CB} = -40V, I_E = 0$			-1	μA
Emitter cut-off current	I_{EBO}	$V_{EB} = -4V, I_C = 0$			-1	μA
DC current gain	$h_{FE(1)}$	$V_{CE} = -3V, I_C = -0.5A$	82		390	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -2A, I_B = -0.2A$			-1	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = -1.5A, I_B = -0.15A$			-1.2	V
Transition frequency	f_T	$V_{CE} = -5V, I_C = -0.5A, f = 30MHz$		70		MHz
Collector output capacitance	C_{ob}	$V_{CB} = -10V, I_E = 0, f = 1MHz$		50		pF

CLASSIFICATION OF $h_{FE(1)}$

Rank	P	Q	R
Range	82-180	120-270	180-390
Marking			

Typical Characteristics

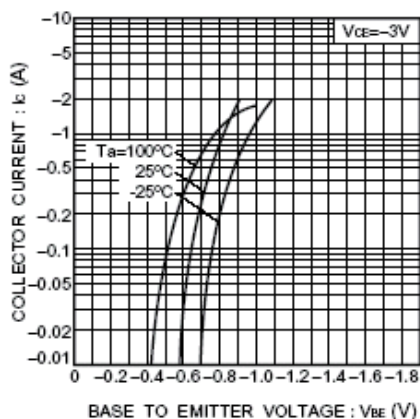


Fig.1 Grounded emitter propagation characteristics

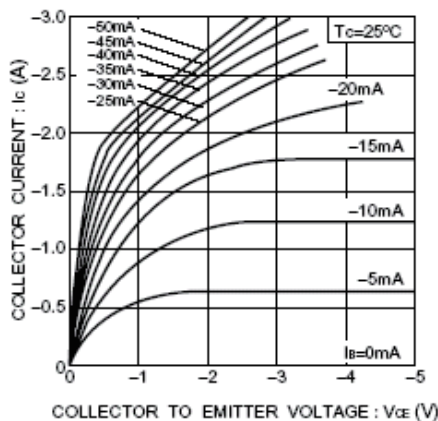


Fig.2 Grounded emitter output characteristics (I)

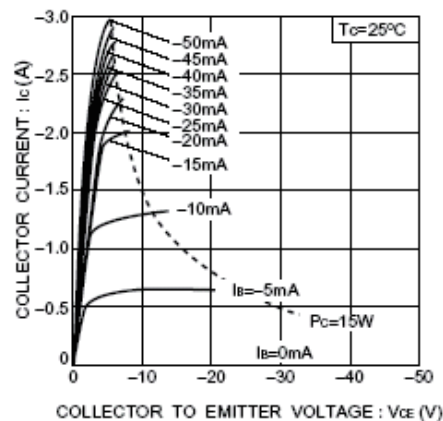


Fig.3 Grounded emitter output characteristics (II)

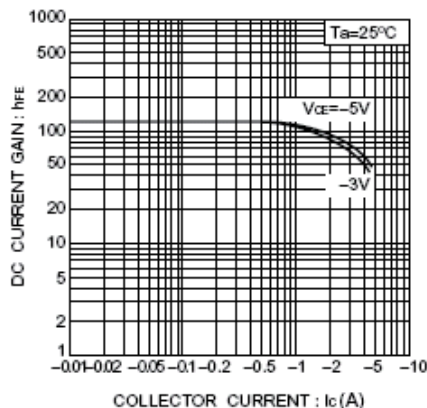


Fig.4 DC current gain vs. collector current (I)

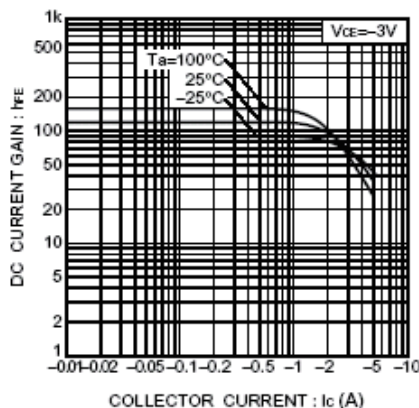


Fig.5 DC current gain vs. collector current (II)

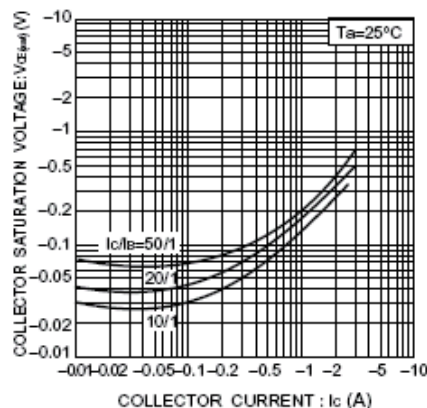


Fig.6 Collector-emitter saturation voltage vs. collector current

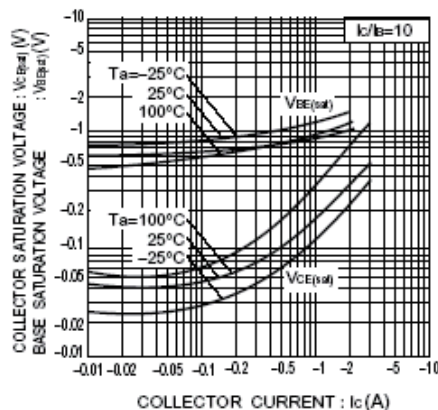


Fig.7 Collector-emitter saturation voltage vs. collector current
Base-emitter saturation voltage vs. collector current

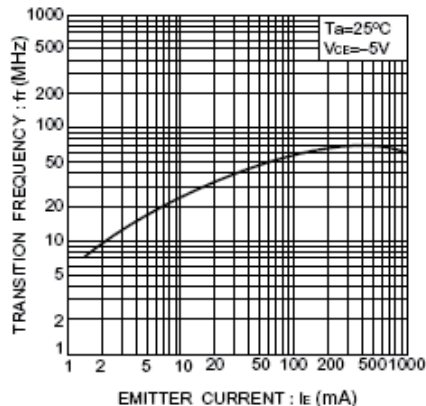


Fig.8 Gain bandwidth product vs. emitter current

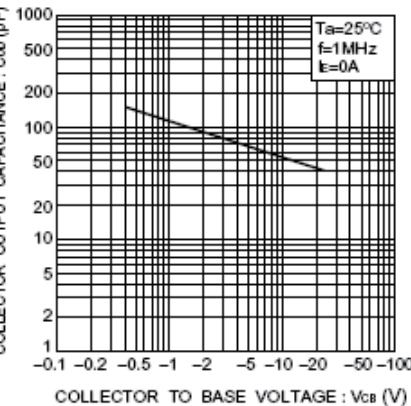


Fig.9 Collector output capacitance vs. collector base voltage

Typical Characteristics

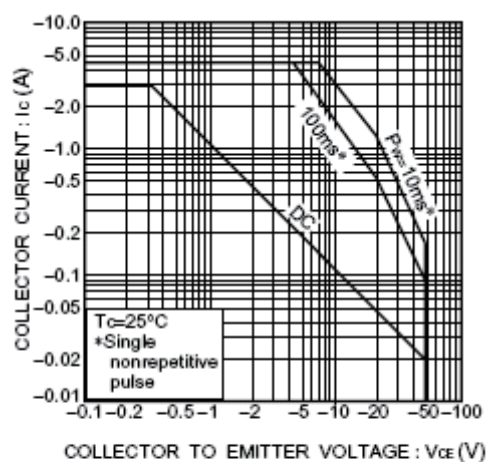
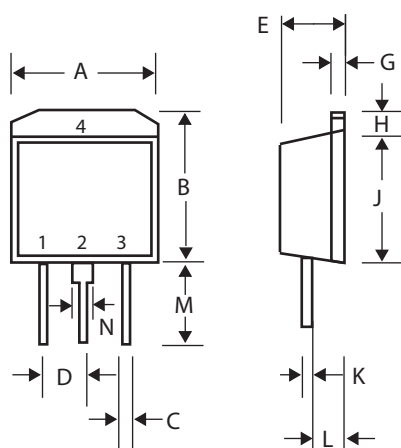


Fig.10 Safe operation area
(2SB1184)

TO-251 Outline Dimensions

unit:mm

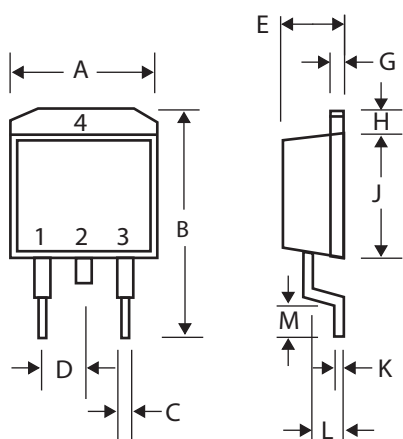


TO-251		
Dim	Min	Max
A	6.40	6.80
B	6.80	7.20
C	0.50	0.80
D	-	2.30
E	2.20	2.50
G	0.45	0.55
H	1.00	1.60
J	5.40	5.80
K	0.45	0.69
L	0.90	1.50
M	6.50	-
N	-	0.90

1. Emitter
2. Base
3. Collector

TO-252 Outline Dimensions

unit:mm



TO-252		
Dim	Min	Max
A	6.40	6.80
B	9.00	10.00
C	0.50	0.80
D	-	2.30
E	2.20	2.50
G	0.45	0.55
H	1.00	1.60
J	5.40	5.80
K	0.30	0.64
L	0.70	1.70
M	0.90	1.50