

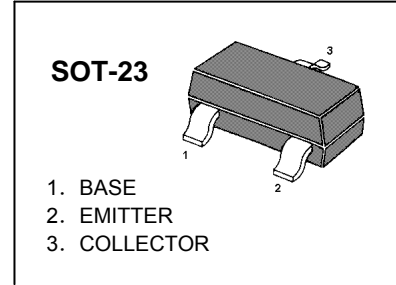


TRANSISTOR (NPN)

FEATURES

Switching transistor

MARKING: 2X



MAXIMUM RATINGS (T_A=25°C unless otherwise noted)

Symbol	Parameter	Value	Units
V _{CB0}	Collector-Base Voltage	60	V
V _{CE0}	Collector-Emitter Voltage	40	V
V _{EB0}	Emitter-Base Voltage	6	V
I _C	Collector Current -Continuous	600	mA
P _C	Collector Power dissipation	0.3	W
T _j	Junction Temperature	150	°C
T _{stg}	Storage Temperature	-55to +150	°C
R _{θJA}	Thermal Resistance, junction to Ambient	357	°C/mW

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

Parameter	Symbol	Test conditions	MIN	MAX	UNIT
Collector-base breakdown voltage	V _{(BR)CBO}	I _C = 100μA, I _E =0	60		V
Collector-emitter breakdown voltage	V _{(BR)CEO}	I _C = 1mA, I _B =0	40		V
Emitter-base breakdown voltage	V _{(BR)EBO}	I _E = 100μA, I _C =0	6		V
Collector cut-off current	I _{CB0}	V _{CB} =50 V, I _E =0		0.1	μA
Collector cut-off current	I _{CEO}	V _{CE} =30 V, I _B =0		0.1	μA
Emitter cut-off current	I _{EBO}	V _{EB} =5V, I _C =0		0.1	μA
DC current gain	h _{FE}	V _{CE} =1V, I _C =150mA	100	300	
Collector-emitter saturation voltage	V _{CE(sat)}	I _C =150mA, I _B =15mA		0.4	V
Base-emitter saturation voltage	V _{BE(sat)}	I _C = 150mA, I _B =15mA		0.95	V
Transition frequency	f _T	V _{CE} = 10V, I _C = 20mA f = 100MHz	250		MHz



Typical Characteristics

MMBT4401

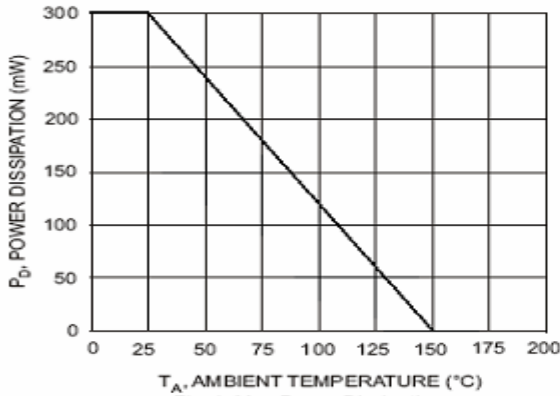


Fig. 1 Max Power Dissipation vs Ambient Temperature

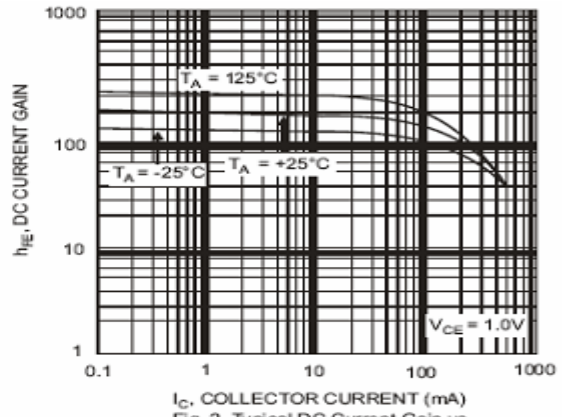


Fig. 2 Typical DC Current Gain vs Collector Current

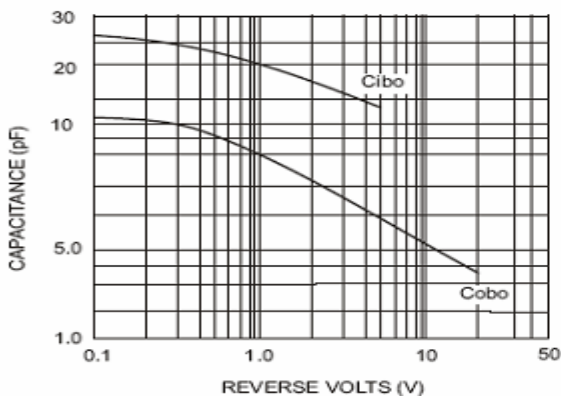


Fig. 3 Typical Capacitance

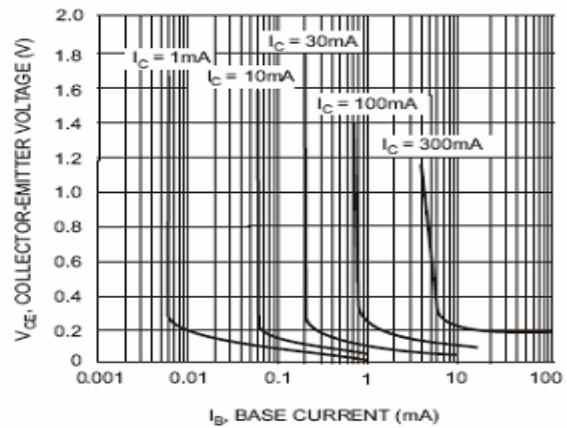


Fig. 4 Typical Collector Saturation Region

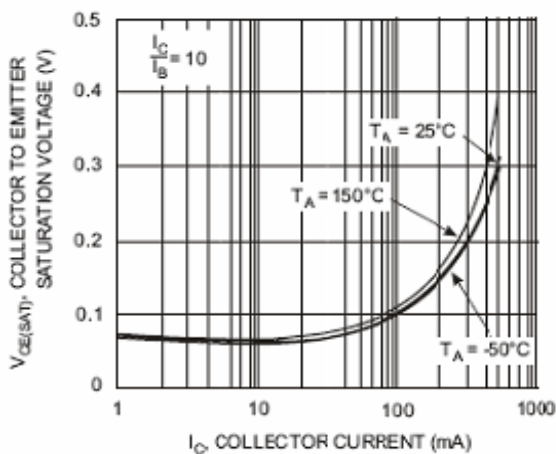


Fig. 5 Collector Emitter Saturation Voltage vs. Collector Current

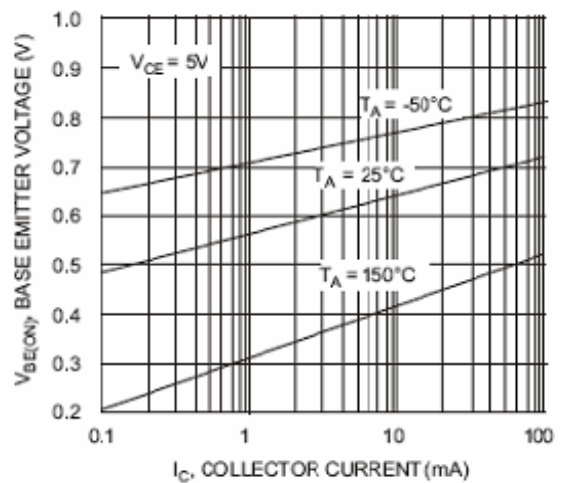


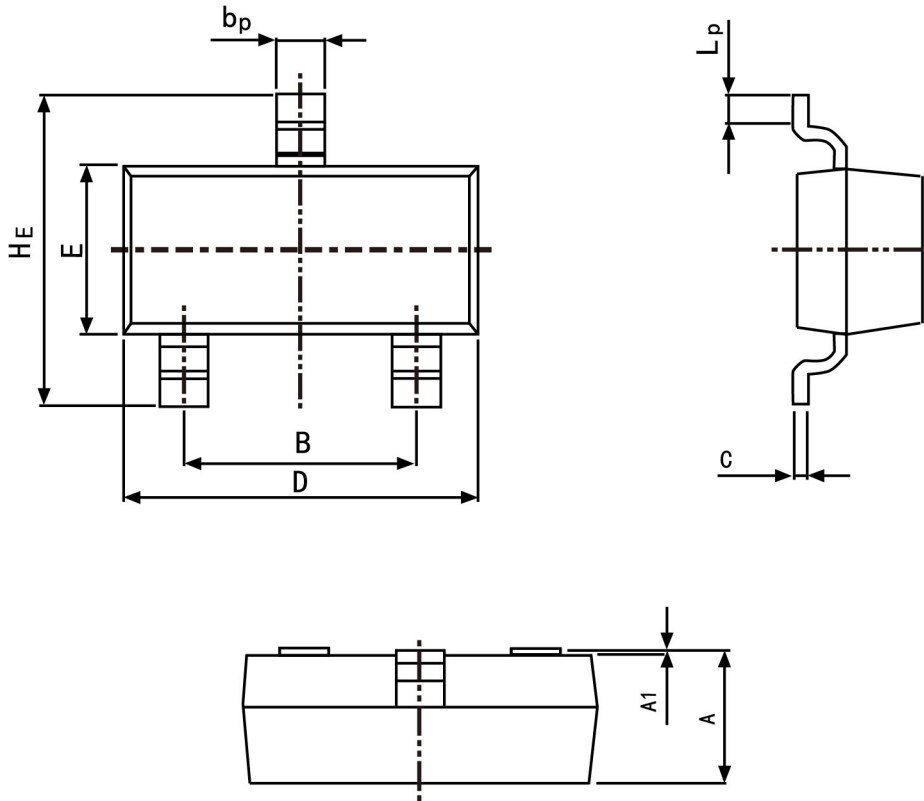
Fig. 6 Base Emitter Voltage vs. Collector Current



PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT-23



Symbol	Dimension in Millimeters	
	Min	Max
A	0.95	1.40
B	1.78	2.04
bp	0.35	0.50
C	0.08	0.19
D	2.70	3.10
E	1.20	1.65
HE	2.20	3.00
A1	0.100	0.013
Lp	0.20	0.50