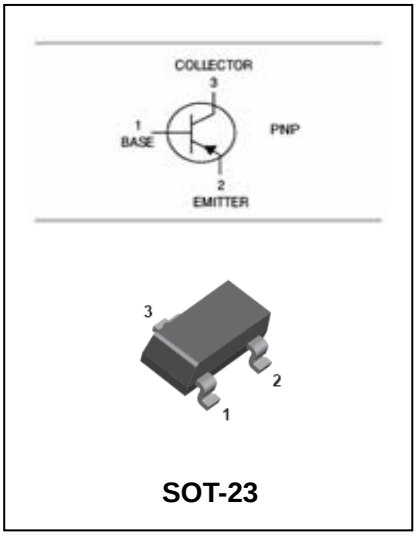
PNP General Purpose Transistor MMBT589

FEATURES

- Epitaxial planar die construction.
- Also available in lead free version.

Lead-free



SOT-23

APPLICATIONS

- High current surface mount PNP silicon switching transistor for load management in portable appilications.

ORDERING INFORMATION

Type No.	Marking	Package Code
MMBT589	589	SOT-23

MAXIMUM RATING @ Ta=25℃ unless otherwise specified

Symbol	Parameter	Value	UNIT
V_{CBO}	collector-base voltage	-50	V
V_{CEO}	collector-emitter voltage	-30	V
V_{EBO}	emitter-base voltage	-5	V
I_C	collector current (DC)	-1.0	A
P_C	Collector dissipation	0.31	W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	403	°C/W
T_j , T_{stg}	junction and storage temperature	-55-150	°C

ELECTRICAL CHARACTERISTICS @ Ta=25℃ unless otherwise specified

PNP General Purpose Transistor MMBT589

Symbol	Parameter	Test conditions	MIN.	MAX.	UNIT
$V_{(BR)CBO}$	Collector-base breakdown voltage	I_C=-100μA,I_E=0	-50		V
$V_{(BR)CEO}$	Collector-emitter breakdown voltage	I_C=-10mA,I_B=0	-30		V
$V_{(BR)EBO}$	Emitter-base breakdown voltage	I_E=-100μA,I_C=0	-5		V
I_{CBO}	collector cut-off current	I_E = 0; V_{CB} = -30V	-	-0.1	μA
I_{EBO}	emitter cut-off current	I_C = 0; V_{EB} = -4V	-	-0.1	μA
h_{FE}	DC current gain	V_{CE} = -2V; I_C= -1mA V_{CE} = -2V;I_C = -500mA V_{CE} = -2V;I_C = -1.0A V_{CE} = -2V;I_C = -2.0A	100 100 80 40	- 300 - -	
$V_{CE(sat)}$	collector-emitter saturation voltage	I_C = -0.5A; I_B = -0.05A I_C = -1.0A; I_B = -0.1A I_C = -2.0A; I_B = -0.2A	- - -	-0.25 -0.30 -0.65	V
$V_{BE(sat)}$	base-emitter saturation voltage	I_C = -1.0A; I_B = -0.1A	-	-1.2	V
f_T	transition frequency	I_C = -100mA; V_{CE} = -5V; f = 100MHz	100	-	MHz
C_{obo}	Output capacitance	f=1.0MHz	-	15	pF

TYPICAL CHARACTERISTICS @ Ta=25℃ unless otherwise specified

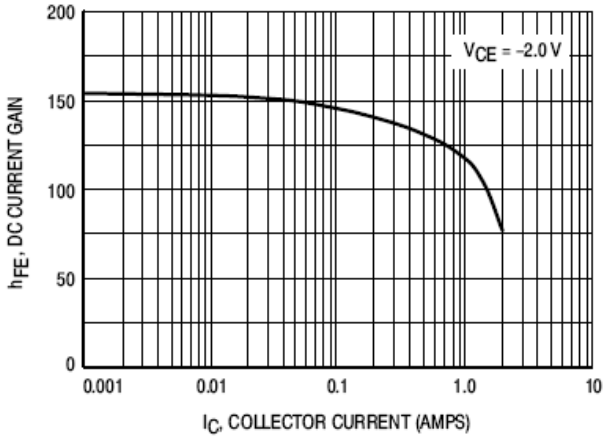


Figure 1. DC Current Gain versus Collector Current

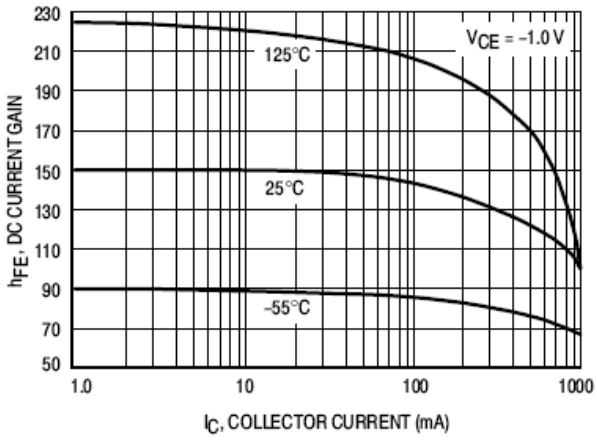


Figure 2. DC Current Gain versus Collector Current

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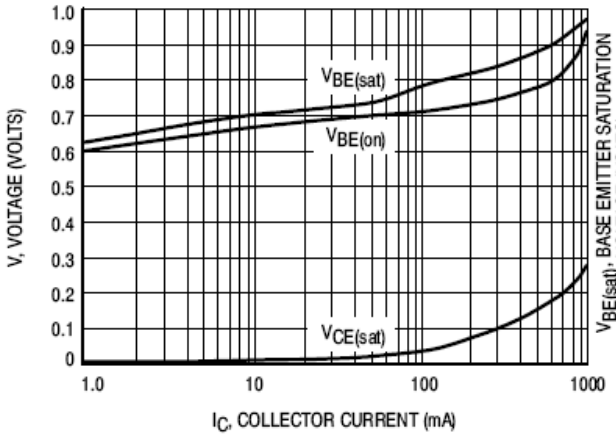

Figure 3. "On" Voltages

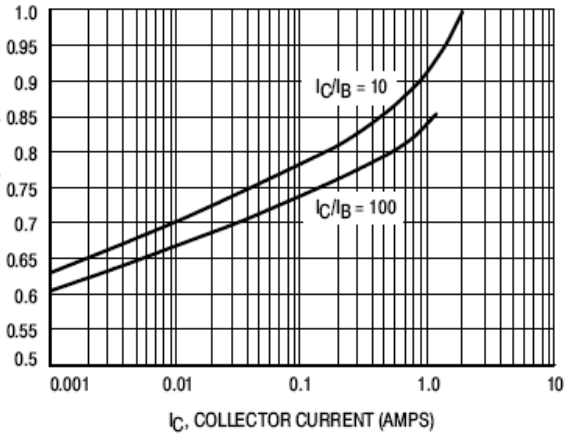

Figure 4. Base Emitter Saturation Voltage versus Collector Current

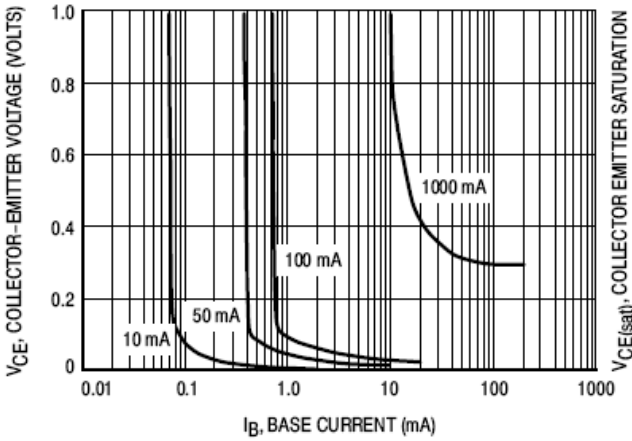

Figure 5. Collector Emitter Saturation Voltage versus Collector Current

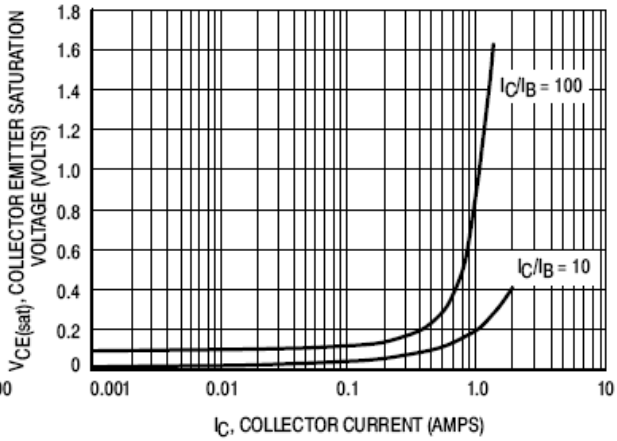

Figure 6. Collector Emitter Saturation Voltage versus Collector Current

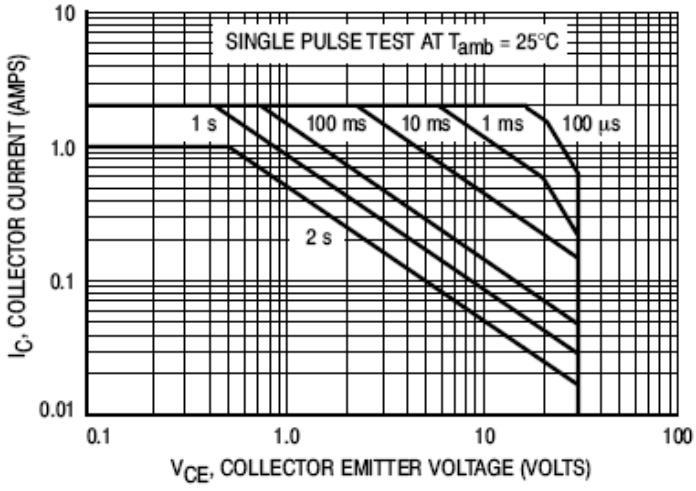

Figure 7. Safe Operating Area

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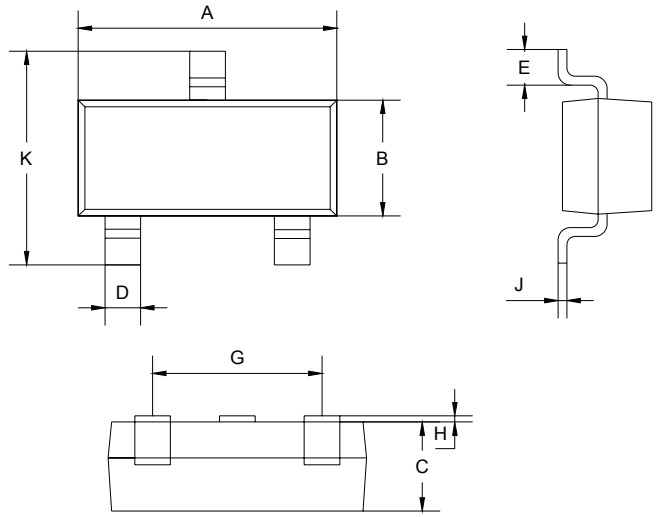
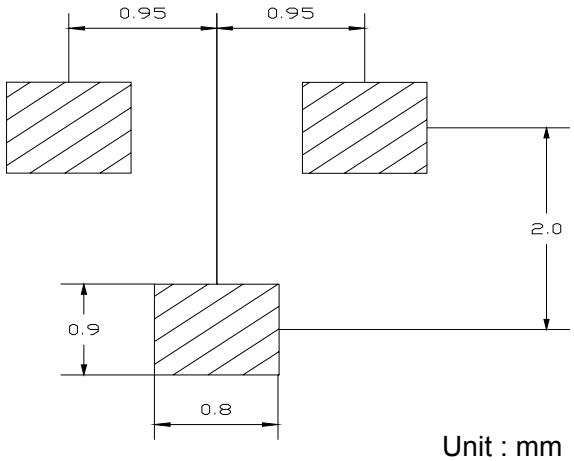
PACKAGE OUTLINE

Plastic surface mounted package SOT-23



SOT-23		
Dim	Min	Max
A	2.85	2.95
B	1.25	1.35
C	1.0Typical	
D	0.37	0.43
E	0.35	0.48
G	1.85	1.95
H	0.02	0.1
J	0.1Typical	
K	2.35	2.45
All Dimensions in mm		

SOLDERING FOOTPRINT



Unit : mm

PACKAGE INFORMATION

Device	Package	Shipping
MMBT589	SOT-23	3000/Tape&Reel