

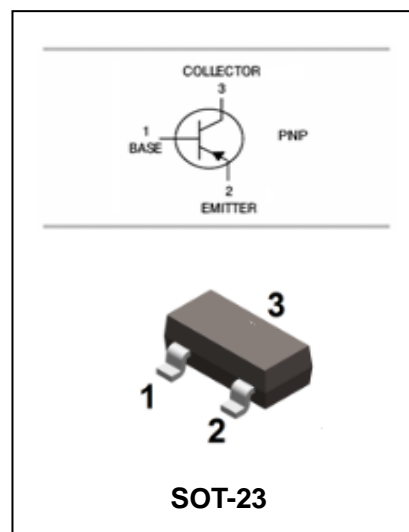
## FEATURES

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

**HF**

## APPLICATIONS

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



## ORDERING INFORMATION

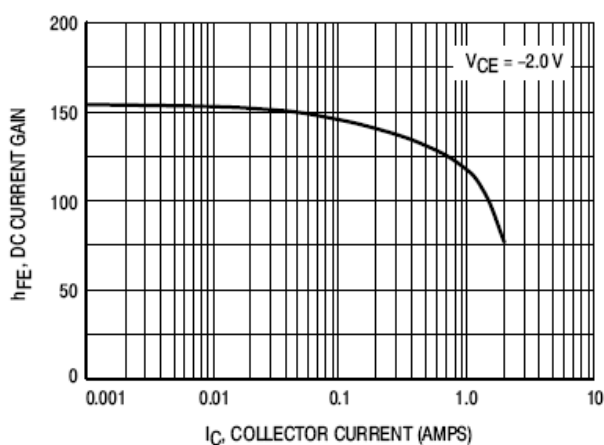
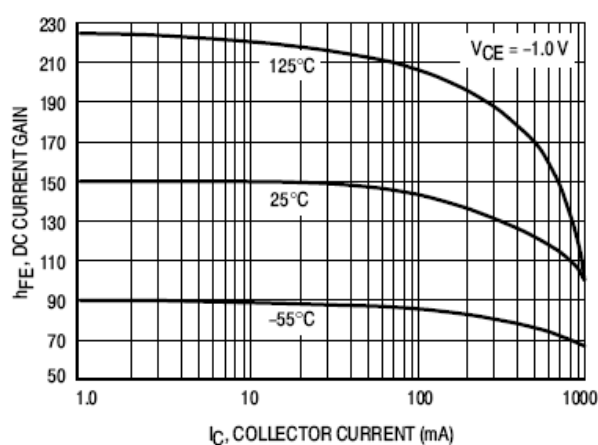
Type No.	Marking	Package Code
MMBT589	589	SOT-23

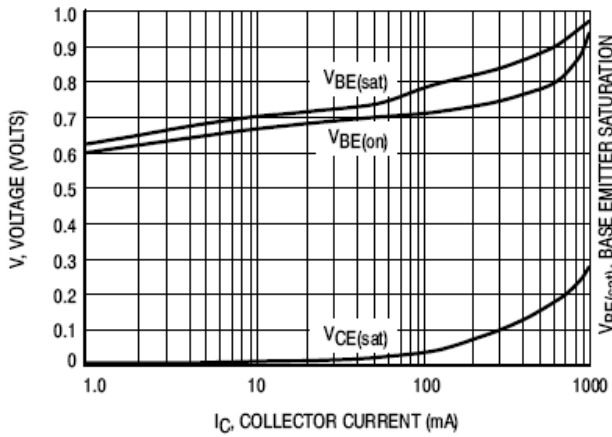
## MAXIMUM RATING @ Ta=25°C unless otherwise specified

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
$I_{CM}$	Collector Current-Peak	-2.0	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 to +150	°C

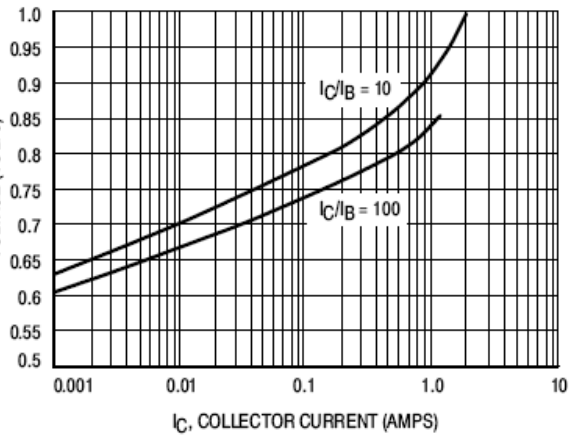
**ELECTRICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified**

Symbol	Parameter	Test conditions	MIN.	MAX.	UNIT
$V_{(BR)CBO}$	Collector-base breakdown voltage	$I_C = -100\mu A, I_E = 0$	-50		V
$V_{(BR)CEO}$	Collector-emitter breakdown voltage	$I_C = -10mA, I_B = 0$	-30		V
$V_{(BR)EBO}$	Emitter-base breakdown voltage	$I_E = -100\mu A, I_C = 0$	-5		V
$I_{CBO}$	Collector cut-off current	$I_E = 0; V_{CB} = -30V$	-	-0.1	$\mu A$
$I_{CES}$	Collector-emitter cutoff current	$V_{CES} = -30V$	-	-0.1	$\mu A$
$I_{EBO}$	Emitter cut-off current	$I_C = 0; V_{EB} = -4V$	-	-0.1	$\mu A$
$h_{FE}$	DC current gain	$V_{CE} = -2V; I_C = -1mA$	100	-	
		$V_{CE} = -2V; I_C = -500mA$	100	300	
		$V_{CE} = -2V; I_C = -1.0A$	80	-	
		$V_{CE} = -2V; I_C = -2.0A$	40	-	
$V_{CE(sat)}$	collector-emitter saturation voltage	$I_C = -0.5A; I_B = -0.05A$	-	-0.25	V
		$I_C = -1.0A; I_B = -0.1A$	-	-0.30	
		$I_C = -2.0A; I_B = -0.2A$	-	-0.65	
$V_{BE(sat)}$	base-emitter saturation voltage	$I_C = -1.0A; I_B = -0.1A$	-	-1.2	V
$V_{BE(on)}$	Base-emitter Turn-on voltage	$I_C = -1.0A, V_{CE} = -2.0V$	-	-1.1	V
$f_T$	transition frequency	$I_C = -100mA; V_{CE} = -5V;$ $f = 100MHz$	100	-	MHz
$C_{obo}$	Output capacitance	$f = 1.0MHz$	-	15	pF

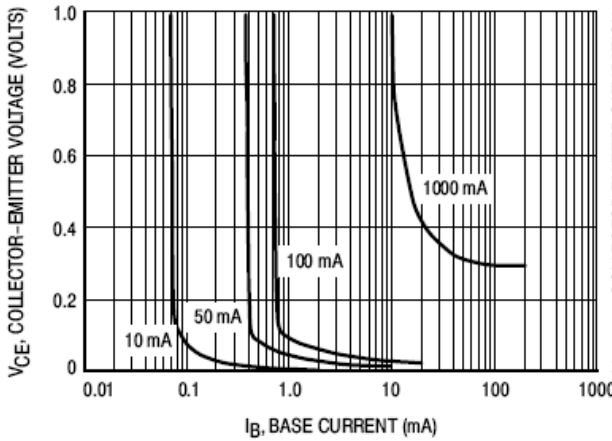
**TYPICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified**

**Figure 1. DC Current Gain versus Collector Current**

**Figure 2. DC Current Gain versus Collector Current**



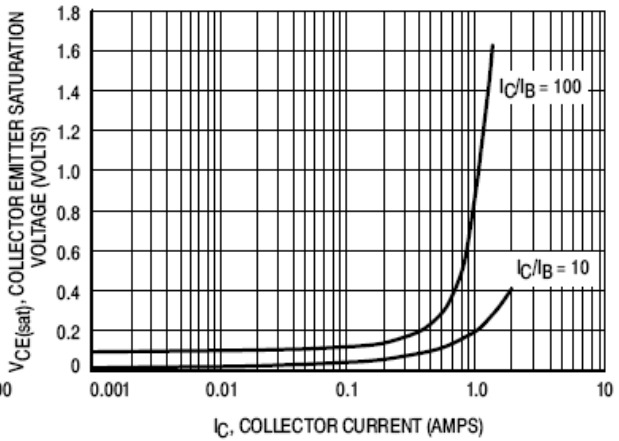
**Figure 3. "On" Voltages**



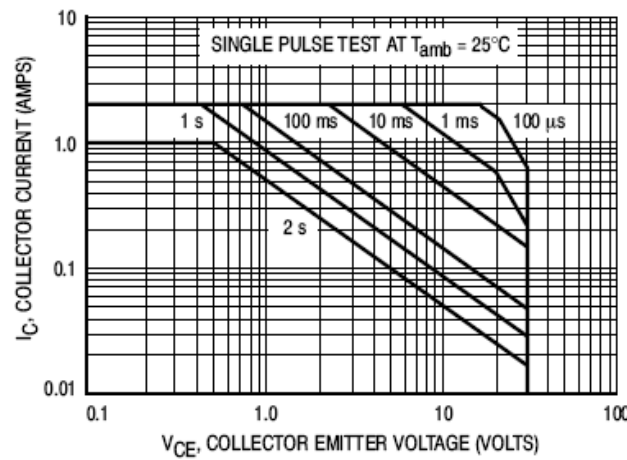
**Figure 4. Base Emitter Saturation Voltage versus Collector Current**



**Figure 5. Collector Emitter Saturation Voltage versus Collector Current**



**Figure 6. Collector Emitter Saturation Voltage versus Collector Current**

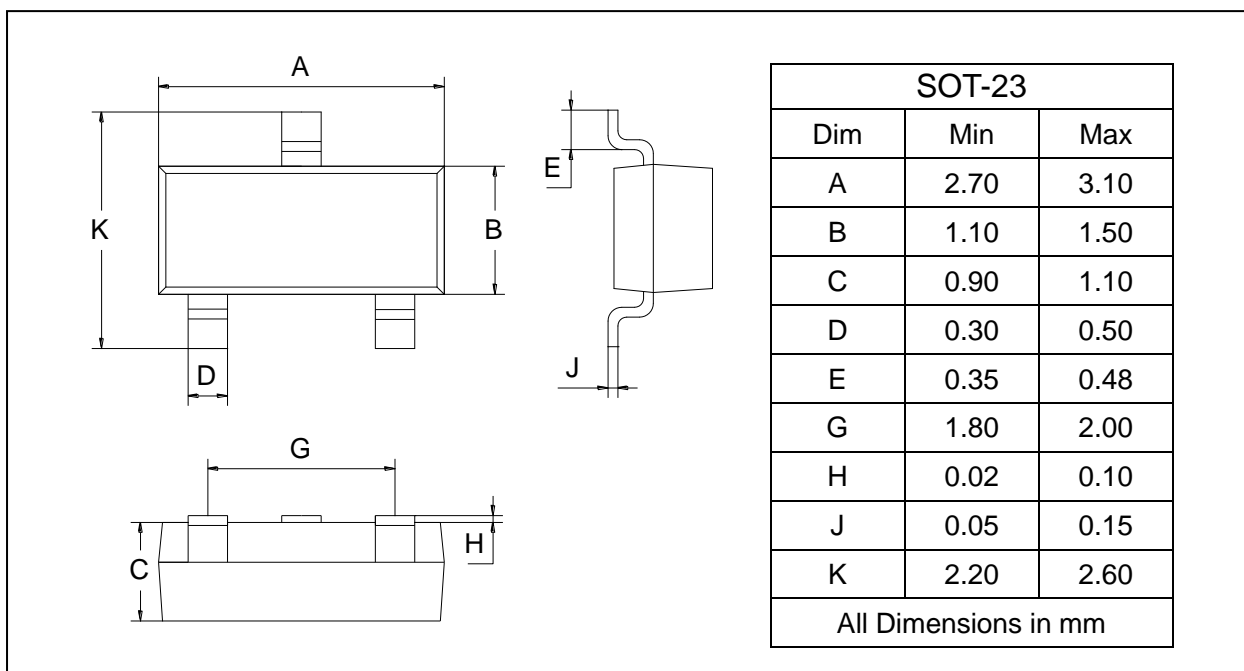


**Figure 7. Safe Operating Area**

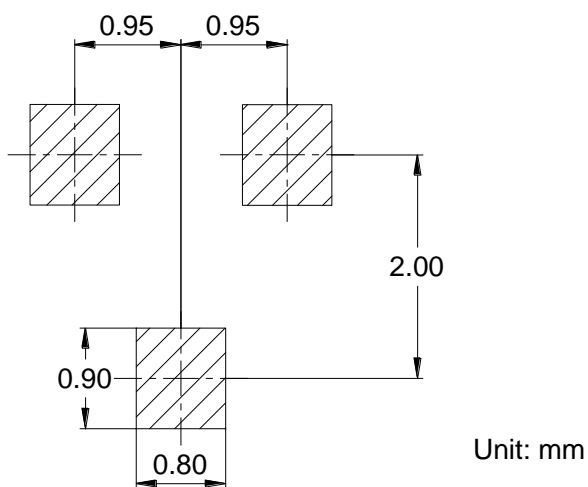
## PACKAGE OUTLINE

Plastic surface mounted package

SOT-23



## SOLDERING FOOTPRINT



## PACKAGE INFORMATION

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