



## DESCRIPTION

For switching and amplifier applications. Especially suitable for AF-driver stages and low power output stages.

As complementary type the NPN transistor

The MBT589L is available in SOT-23 package

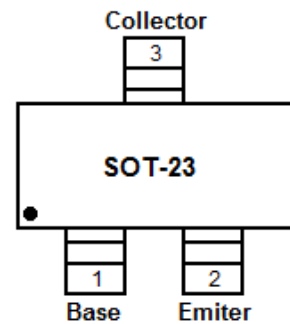
## FEATURES

- Available in SOT-23 package

## ORDERING INFORMATION

Package Type	Part Number
SOT-23	MBT589L
Note	SPQ: 3,000pcs/Reel
AiT provides all RoHS Compliant Products	

## PIN DESCRIPTION





## ABSOLUTE MAXIMUM RATINGS

$T_A = 25^\circ\text{C}$

$-V_{CB0}$ , Collector Base Voltage	40V
$-V_{CEO}$ , Collector Emitter Voltage	25V
$-V_{EBO}$ , Emitter Base Voltage	6V
$-I_C$ , Collector Current	1A
$P_{TOT}$ , Power Dissipation	350mW
$T_J$ , Junction Temperature	150°C
$T_{STG}$ , Storage Temperature	-55 ~ +150°C

Stresses above may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other conditions beyond those indicated in the Electrical Characteristics are not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

## ELECTRICAL CHARACTERISTICS

$T_A = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Min.	Max.	Unit
DC Current Gain	$h_{FE}$	$-V_{CE}=1V, -I_C=100mA$	200	400	-
		$-V_{CE}=1V, -I_C=800mA$	-	40	-
Collector Base Cutoff Current	$-I_{CB0}$	$-V_{CB}=35V$	-	100	nA
Emitter Base Cutoff Current	$-I_{EBO}$	$-V_{EB}=6V$	-	100	nA
Collector Base Breakdown Voltage	$-V_{(BR)CB0}$	$-I_C=100\mu A$	40	-	V
Collector Emitter Breakdown Voltage	$-V_{(BR)CEO}$	$-I_C=2mA$	25	-	V
Emitter Base Breakdown Voltage	$-V_{(BR)EBO}$	$-I_C=100\mu A$	6	-	V
Collector Emitter Saturation Voltage	$-V_{CE(sat)}$	$-I_C=800mA, -I_B=80mA$	-	0.5	V
Base Emitter Saturation Voltage	$-V_{BE(sat)}$	$-I_C=800mA, -I_B=80mA$	-	1.2	V
Base Emitter Voltage	$-V_{BE(on)}$	$-V_{CE}=1V, -I_C=10mA$	-	1	V
Gain Bandwidth Product	$f_T$	$-V_{CE}=10V, -I_C=50mA$	120	-	MHz



### TYPICAL CHARACTERISTICS

Figure 1.  $I_C - V_{CE}$

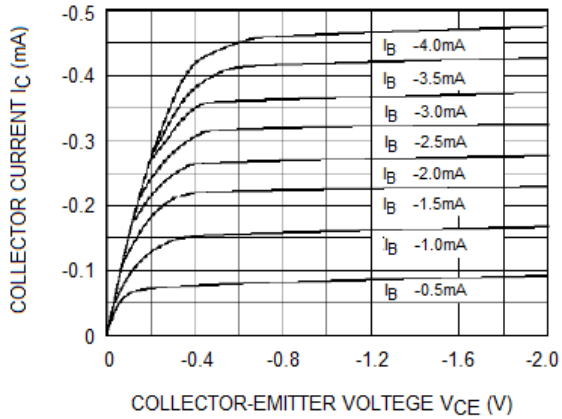


Figure 2.  $h_{FE} - I_C$

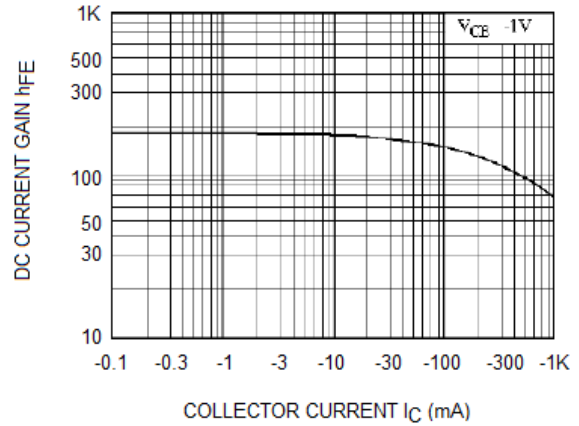


Figure 3.  $I_C - V_{BE}$

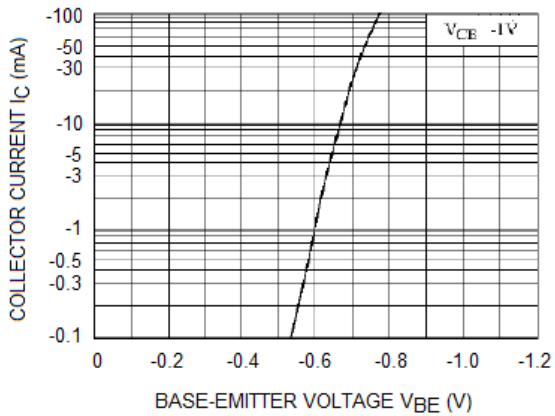


Figure 4.  $V_{BE(sat)}, V_{CE(sat)} - I_C$

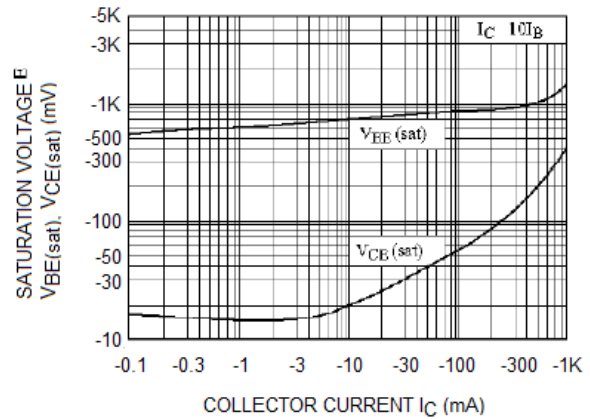


Figure 5.  $f_T - I_C$

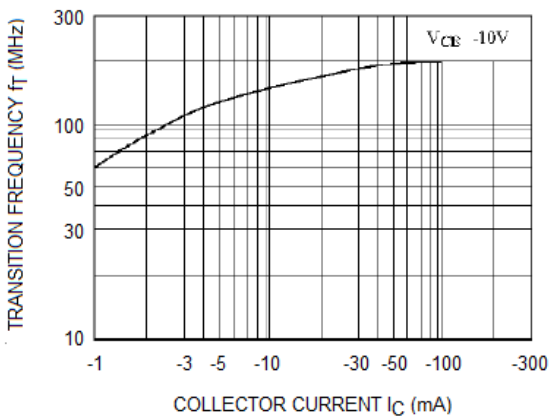
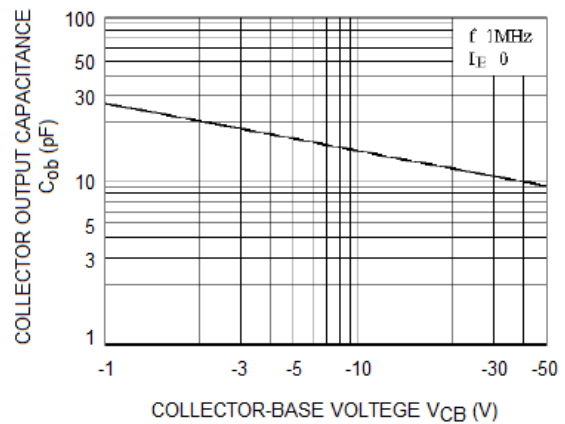


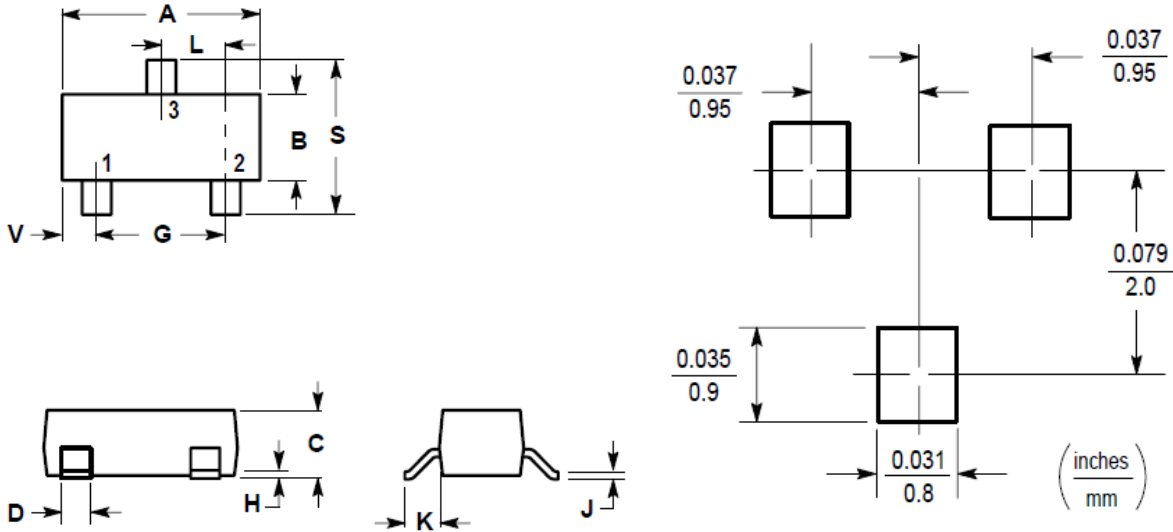
Figure 6.  $C_{ob} - V_{CB}$





**PACKAGE INFORMATION**

Dimension in SOT-23 Package (Unit: mm)



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	2.80	3.04	0.1102	0.1197
B	1.20	1.40	0.0472	0.0551
C	0.89	1.11	0.0350	0.0440
D	0.37	0.50	0.0150	0.0200
G	1.78	2.04	0.0701	0.0807
H	0.013	0.100	0.0005	0.0040
J	0.085	0.177	0.0034	0.0070
K	0.35	0.69	0.0140	0.0285
L	0.89	1.02	0.0350	0.0401
S	2.10	2.64	0.0830	0.1039
V	0.45	0.60	0.0177	0.0236



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