

# MMBT589

Rev.F Apr.-2017

## / Descriptions

SOT-23          PNP          Silicon PNP transistor in a SOT-23 Plastic Package.

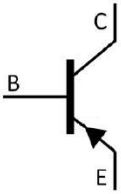
## / Features

Large current, surface mount device.

## / Applications

Switching for high current applications.

## / Equivalent Circuit



## / Pinning



PIN1 Base          PIN 2 Emitter          PIN 3 Collector

## / $h_{FE}$ Classifications & Marking

$h_{FE}$ Range	100 300
Marking	HG3

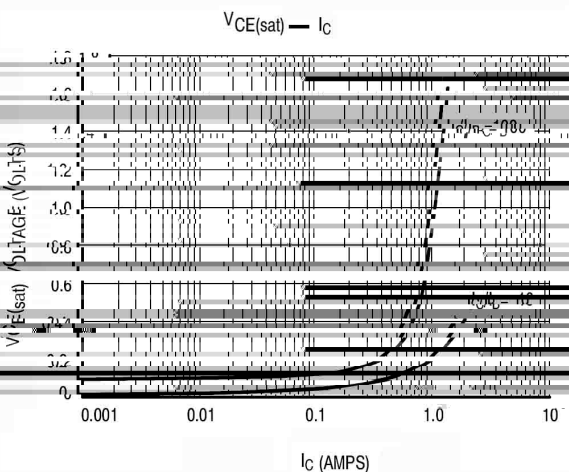
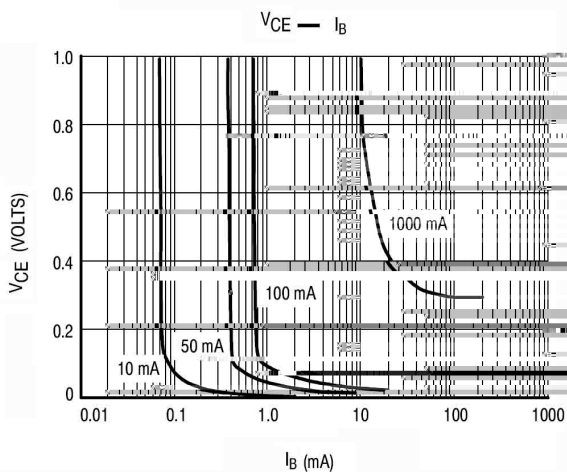
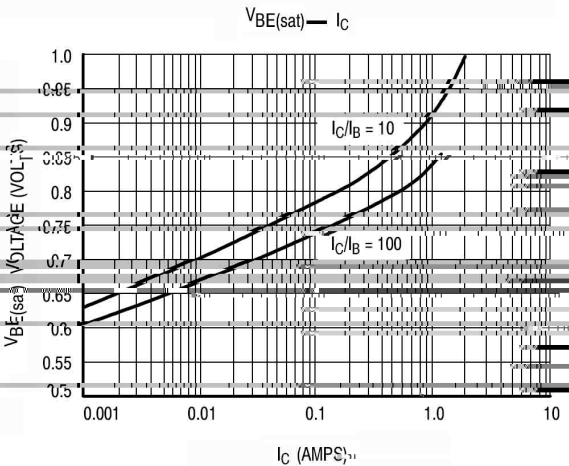
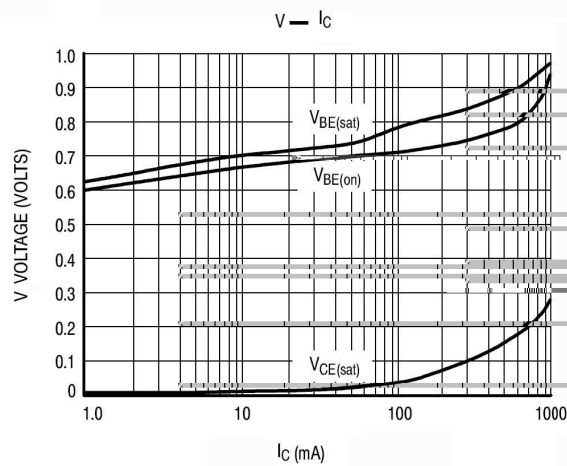
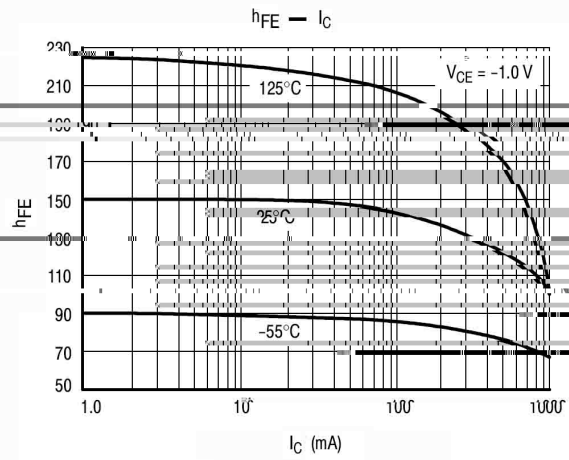
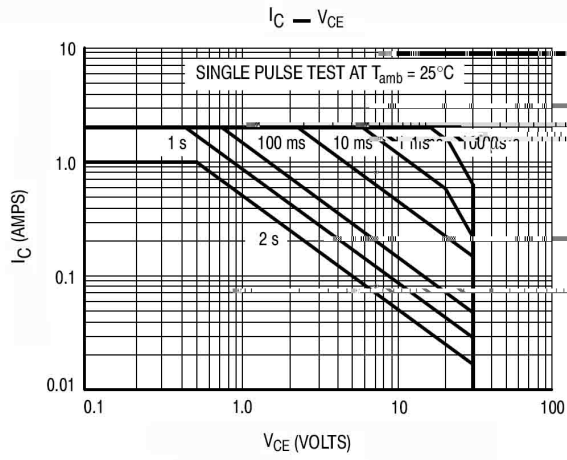
## / Absolute Maximum Ratings(Ta=25 )

Parameter	Symbol	Rating	Unit
Collector to Base Voltage	$V_{CBO}$	-50	V
Collector to Emitter Voltage	$V_{CEO}$	-30	V
Emitter to Base Voltage	$V_{EBO}$	-5.0	V
Collector Current	$I_C$	-1.0	A
Collector Current – Peak	$I_{CM}$	-2.0	A
Collector Power Dissipation	$P_D$	310	mW
Junction Temperature	$T_j$	150	
Storage Temperature Range	$T_{stg}$	-55 150	

## / Electrical Characteristics(Ta=25 )

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector to Base Breakdown Voltage	$V_{CBO}$	$I_C=-0.1mA$ $I_E=0$	-50			V
Collector to Emitter Breakdown Voltage	$V_{CEO}$	$I_C=-10mA$ $I_B=0$	-30			V
Emitter to Base Breakdown Voltage	$V_{EBO}$	$I_E=-0.1mA$ $I_C=0$	-5.0			V
Collector Cut-Off Current	$I_{CBO}$	$V_{CB}=-30V$ $I_E=0$			-0.1	$\mu A$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB}=-4.0V$ $I_E=0$			-0.1	$\mu A$
Collector–Emitter Cutoff Current	$I_{CES}$	$V_{CES}=-30V$ $I_E=0$			-0.1	$\mu A$
DC Current Gain	$h_{FE(1)}$	$V_{CE}=-2.0V$ $I_C=-500mA$	100		300	
	$h_{FE(2)}$	$V_{CE}=-2.0V$ $I_C=-2.0A$	40			
	$h_{FE(3)}$	$V_{CE}=-2.0V$ $I_C=-1.0A$	80			
	$h_{FE(4)}$	$V_{CE}=-2.0V$ $I_C=-1.0mA$	100			
Collector –Emitter Saturation Voltage	$V_{CE(sat)(1)}$	$I_C=-500mA$ $I_B=-50mA$			-0.25	V
	$V_{CE(sat)(2)}$	$I_C=-1.0A$ $I_B=-100mA$			-0.30	V
	$V_{CE(sat)(3)}$	$I_C=-2.0A$ $I_B=-200mA$			-0.65	V
Base–Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=-1.0A$ $I_B=-0.1A$			-1.2	V
Base–Emitter Turn–on Voltage	$V_{BE(ON)}$	$I_C=-1.0A$ $V_{CE}=-2.0V$			-1.1	V
Transition Frequency	$f_T$	$I_C=-100mA$ $f=100MHz$ $V_{CE}=-5.0V$	100			MHz
Collector Output Capacitance	$C_{obo}$	$f=1.0MHz$			15	pF

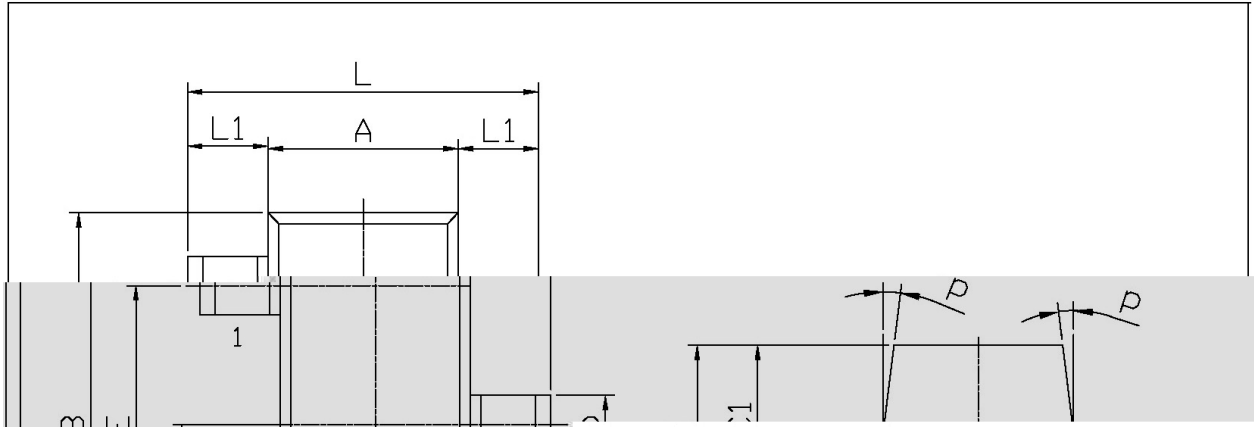
**/ Electrical Characteristic Curve**



/ Package Dimensions

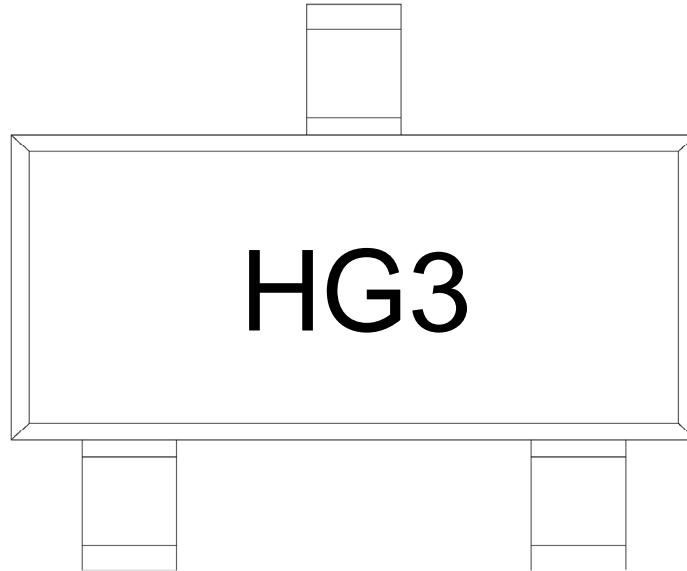
SOT-23

单位: mm



Symbol	Min.	Max.	Symbol	Min.	Max.
L	2.2	2.7	C	1.30Max	
L1	0.45	0.65	C1	0.90	1.20
A	1.15	1.50	c	0.05	0.20
B	2.70	3.10	K	0	0.10
E	1.70	2.10	M	0.20MIN	
E1	0.85	1.05	P	7°	
b	0.35	0.55			

/ Marking Instructions



H

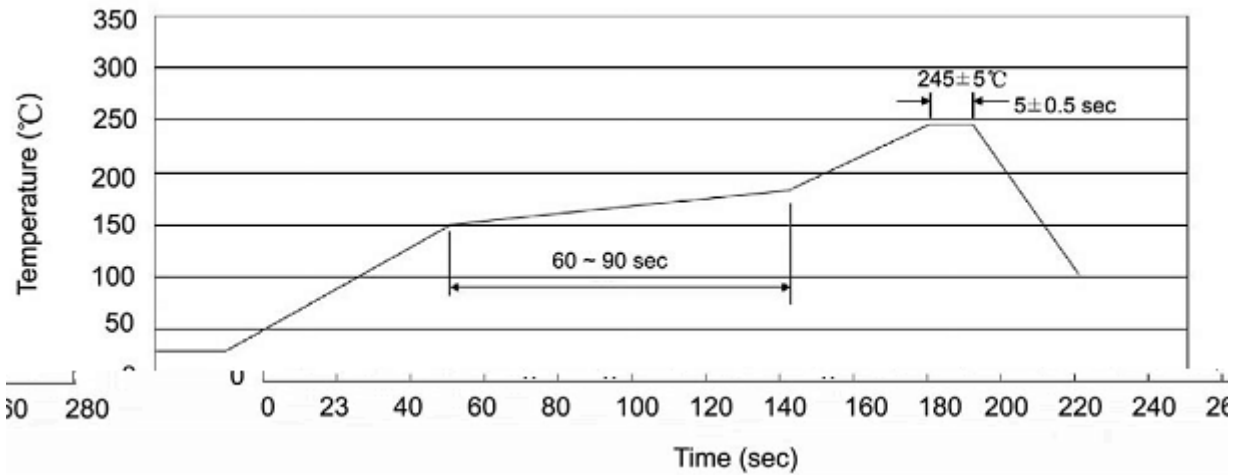
G3

Note:

H            Company Code

G3            Product Type Code

( ) / Temperature Profile for IR Reflow Soldering(Pb-Free)



Note:

- |   |       |     |    |           |   |
|---|-------|-----|----|-----------|---|
| 1 | 25    | 150 | 60 | 90sec;    | 1.Preheating:25~150 , Time:60~90sec.    |
| 2 | 245±5 |     |    | 5±0.5sec; | 2.Peak Temp.:245±5 , Duration:5±0.5sec. |
| 3 |       |     | 2  | 10 /sec.  | 3. Cooling Speed: 2~10 /sec.            |

/ Resistance to Soldering Heat Test Conditions

260±5                      10±1 sec.                      Temp.:260±5                      Time:10±1 sec

/ Packaging SPEC.

/ REEL

Package Type 封装形式	Units 包装数量					Dimension 包装尺寸 (unit: mm <sup>3</sup> )		
	只 卷盘	卷盘 盒	只 盒	盒 箱	只 箱	盒	箱	

/ Notices