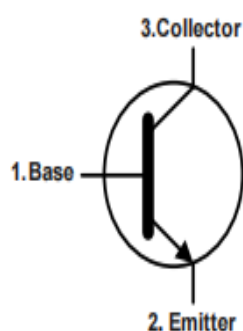


NPN Transistor

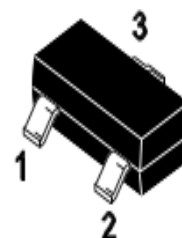
Features

- For Switching and AF Amplifier Applications.

Equivalent Circuit



SOT-23



1.Base 2.Emitter 3.Collector

Marking Code :

MMBT1616AL:CAL
MMBT1616AK:CAK
MMBT1616AU:CAU

Absolute Maximum Ratings

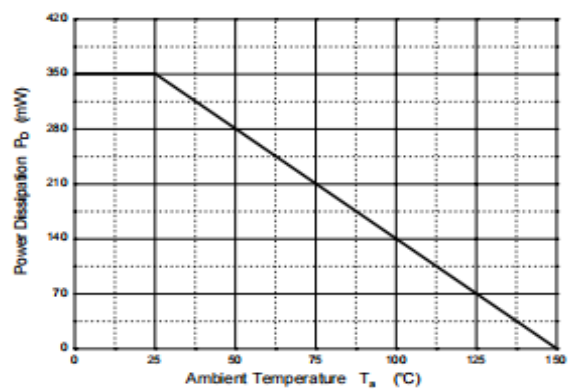
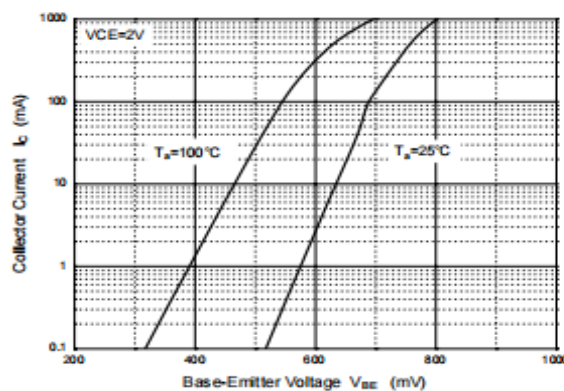
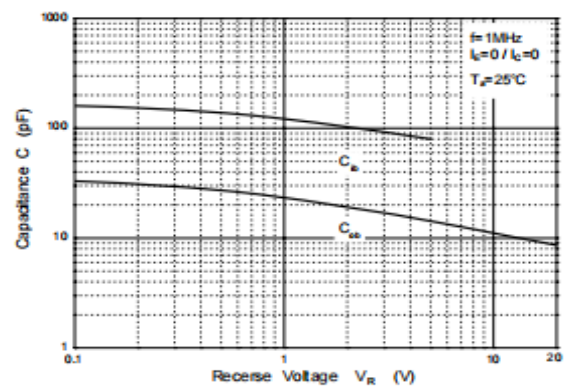
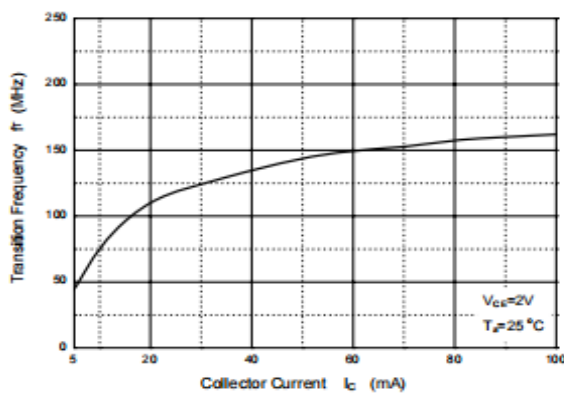
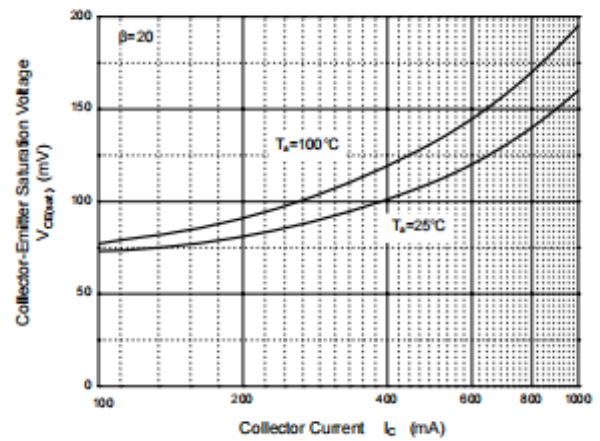
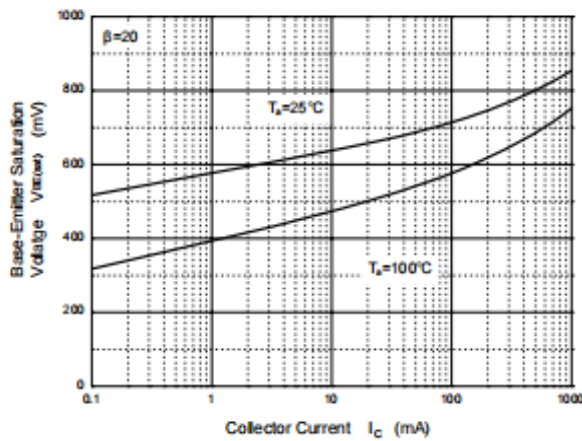
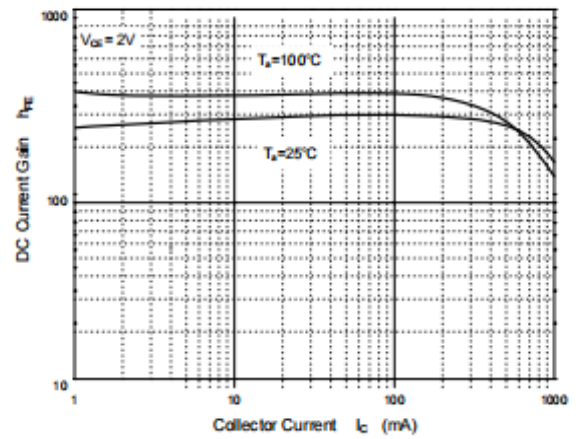
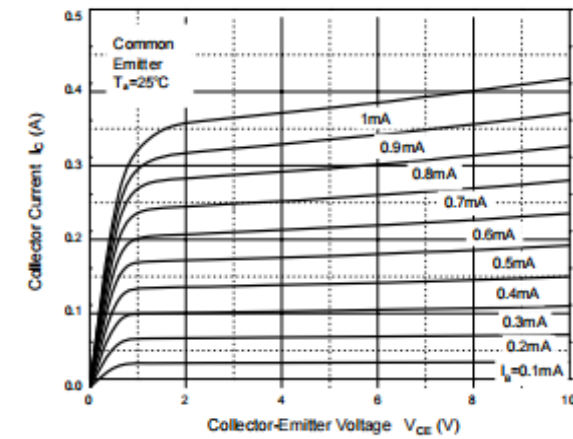
Ratings at 25°C ambient temperature unless otherwise specified.

Parameter	Symbol	Value	Unit
Collector Base Voltage	V_{CBO}	120	V
Collector Emitter Voltage	V_{CEO}	60	V
Emitter Base Voltage	V_{EBO}	6	V
Collector Current	I_C	1	A
Maximum Power Dissipation	P_D	350	mW
Junction Temperature	T_J	150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C

Electrical Characteristics (T_A=25°C)

Parameter	Symbol	Min.	Max.	Unit
DC Current Gain at V _{CE} = 2 V, I _C = 100 mA	H _{FE}	135	270	--
Gain Group L		200	400	
Gain Group K		300	600	
Collector Base Cutoff Current at V _{CB} = 60V	I _{CBO}	--	100	nA
Emitter Base Cutoff Current at V _{EB} = 6 V	I _{EBO}	--	100	nA
Collector Base Breakdown Voltage at I _C = 100 μA	V _{(BR)CBO}	120	--	V
Collector Emitter Breakdown Voltage at I _C = 1 mA	V _{(BR)CEO}	60	--	V
Emitter Base Breakdown Voltage at I _E = 100 μA	V _{(BR)EBO}	6	--	V
Collector Emitter Saturation Voltage at I _C = 1 A, I _B = 50 mA	V _{CE(sat)}	--	0.3	V
Base Emitter Saturation Voltage at I _C = 1 A, I _B = 50 mA	V _{BE(sat)}	--	1.2	V
Base Emitter On Voltage at V _{CE} = 2 V, I _C = 50 mA	V _{BE(on)}	--	0.7	V
Transition Frequency at V _{CE} = 2 V, I _C = 100 mA	F _T	100	--	MHz
Output Capacitance at V _{CB} = 10 V, f = 1 MHz	C _{ob}	--	19	pF

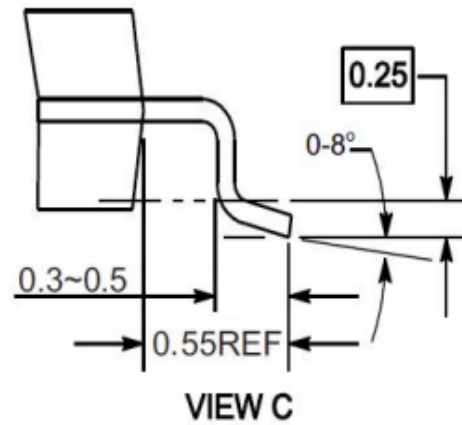
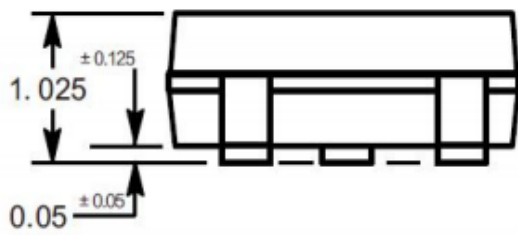
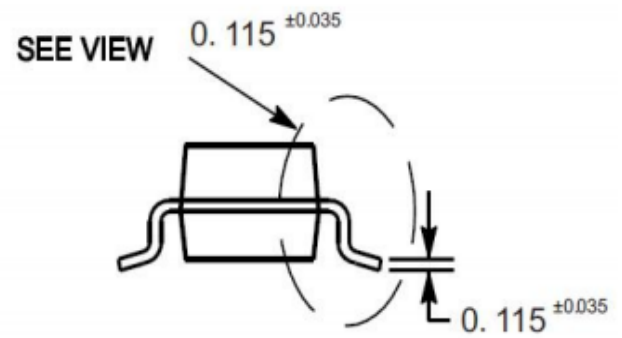
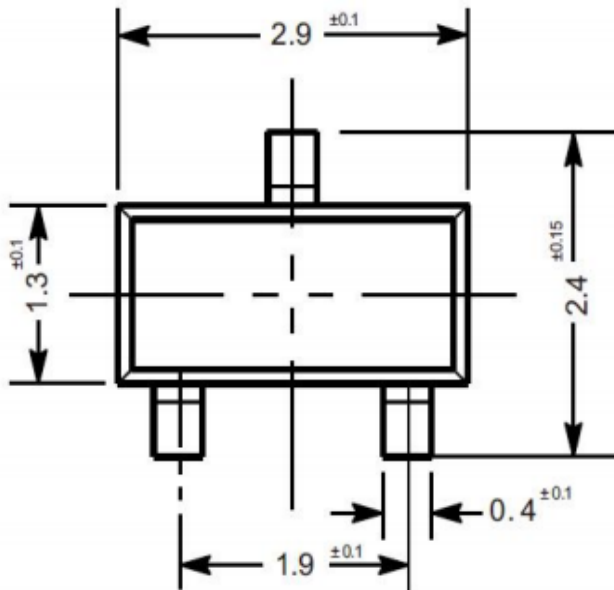
Typical Characteristic Curves



Package Outline

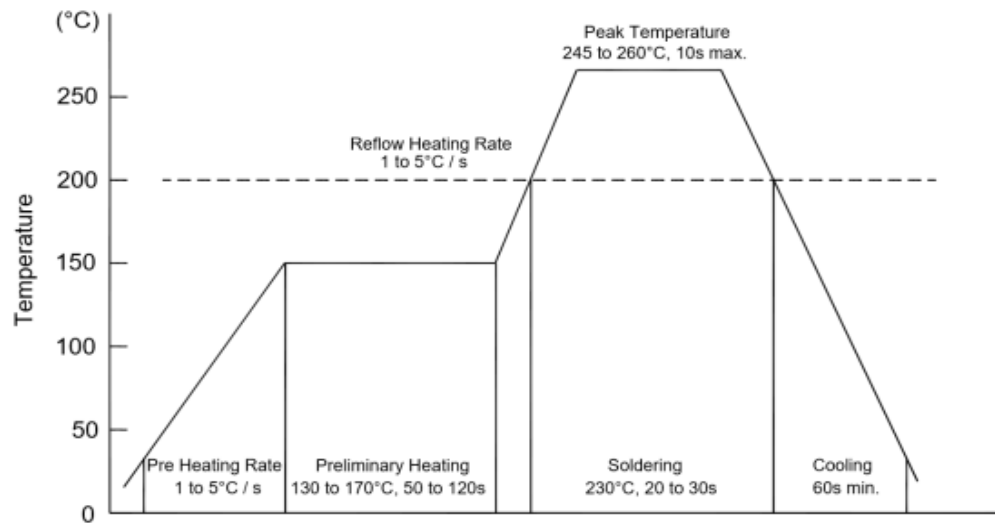
SOT-23

Dimensions in mm



Conditions of Soldering and Storage

◆ Recommended condition of reflow soldering



Recommended peak temperature is over 245 °C. If peak temperature is below 245 °C, you may adjust the following parameters:

- Time length of peak temperature (longer)
- Time length of soldering (longer)
- Thickness of solder paste (thicker)

◆ Conditions of hand soldering

- Temperature: 370 °C
- Time: 3s max.
- Times: one time

◆ Storage conditions

- **Temperature**
5 to 40 °C
- **Humidity**
30 to 80% RH
- **Recommended period**
One year after manufacturing