

## SOT-23 Plastic-Encapsulate Transistors

### MMBT1616 TRANSISTOR (NPN)

#### FEATURES

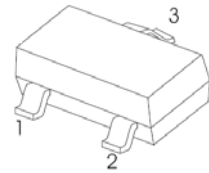
- Audio frequency power amplifier
- Medium speed switching

#### MARKING:16 •

#### MAXIMUM RATINGS (T<sub>a</sub>=25°C unless otherwise noted)

Symbol	Parameter	Value	Unit
V <sub>CB0</sub>	Collector-Base Voltage	60	V
V <sub>CEO</sub>	Collector-Emitter Voltage	50	V
V <sub>EBO</sub>	Emitter-Base Voltage	6	V
I <sub>C</sub>	Collector Current	1	A
P <sub>C</sub>	Collector Power Dissipation	350	mW
R <sub>θJA</sub>	Thermal Resistance From Junction To Ambient	357	°C/W
T <sub>j</sub>	Junction Temperature	150	°C
T <sub>stg</sub>	Storage Temperature	-55~+150	°C

#### SOT - 23



1. BASE
2. EMITTER
3. COLLECTOR

#### ELECTRICAL CHARACTERISTICS (T<sub>a</sub>=25°C unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	V <sub>(BR)CBO</sub>	I <sub>C</sub> =10μA, I <sub>E</sub> =0	60			V
Collector-emitter breakdown voltage	V <sub>(BR)CEO</sub>	I <sub>C</sub> =2mA, I <sub>B</sub> =0	50			V
Emitter-base breakdown voltage	V <sub>(BR)EBO</sub>	I <sub>E</sub> =10μA, I <sub>C</sub> =0	6			V
Collector cut-off current	I <sub>CBO</sub>	V <sub>CB</sub> =60V, I <sub>E</sub> =0			100	nA
Emitter cut-off current	I <sub>EBO</sub>	V <sub>EB</sub> =6V, I <sub>C</sub> =0			100	nA
DC current gain	h <sub>FE(1)</sub>	V <sub>CE</sub> =2V, I <sub>C</sub> =100mA	135		600	
	h <sub>FE(2)</sub>	V <sub>CE</sub> =2V, I <sub>C</sub> =1A	81			
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> =1A, I <sub>B</sub> =50mA			0.3	V
Collector-emitter saturation voltage	V <sub>BE(sat)</sub>	I <sub>C</sub> =1A, I <sub>B</sub> =50mA			1.2	V
Base-emitter voltage	V <sub>BE</sub>	V <sub>CE</sub> =2V, I <sub>C</sub> =50mA	0.6		0.7	V
Transition frequency	f <sub>T</sub>	V <sub>CE</sub> =2V, I <sub>C</sub> =100mA, f=100MHz	100			MHz
Collector output capacitance	C <sub>ob</sub>	V <sub>CB</sub> =10V, I <sub>E</sub> =0, f=1MHz			19	pF

#### CLASSIFICATION OF h<sub>FE(1)</sub>

RANK	Y	G	L
RANGE	135~270	200~400	300~600