



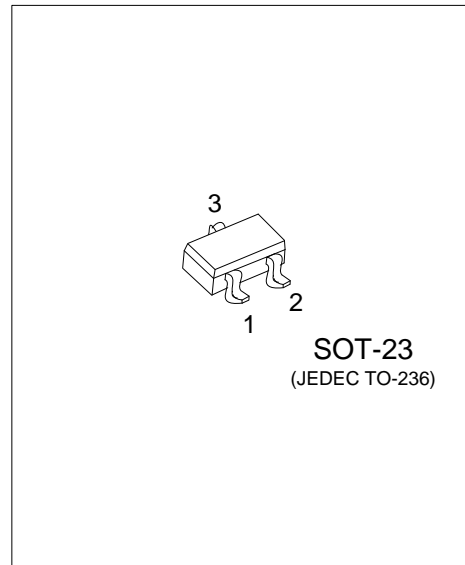
MMBT1616/A

NPN EPITAXIAL SILICON TRANSISTOR

NPN EPITAXIAL SILICON TRANSISTOR

■ **DESCRIPTION**

- * Audio frequency power amplifier
- * Medium speed switching



■ **ORDERING INFORMATION**

Order Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
MMBT1616L-x-AE3-R	MMBT1616G-x-AE3-R	SOT-23	B	E	C	Tape Reel
MMBT1616AL-x-AE3-R	MMBT1616AG-x-AE3-R	SOT-23	B	E	C	Tape Reel

Note: Pin Assignment: B: Base E: Emitter Collector

<p>MMBT1616G-x-AE3-R</p> <p>(1) Packing Type (2) Package Type (3) Rank (4) Green Package</p>	<p>(1) R: Tape Reel (2) AE3: SOT-23 (3) x: refer to Classification of h_{FE1} (4) G: Halogen Free and Lead Free, L: Lead Free</p>
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■ **MARKING**

UTC MMBT1616	UTC MMBT1616A
<p>L: Lead Free G: Halogen Free</p>	<p>L: Lead Free G: Halogen Free</p>

MMBT1616/A

NPN EPITAXIAL SILICON TRANSISTOR

■ ABSOLUTE MAXIMUM RATING ($T_A=25^\circ\text{C}$, unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Collector to Base Voltage	MMBT1616	60	V
	MMBT1616A	120	
Collector to Emitter Voltage	MMBT1616	50	V
	MMBT1616A	60	
Emitter to Base Voltage	V_{EBO}	6	V
Collector Current	DC	1	A
Collector Current	Pulse	2	A
Total Collector Dissipation	P_D	350	mW
Junction Temperature	T_J	+150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55 ~ +150	$^\circ\text{C}$

Notes: 1. Absolute maximum ratings are those values beyond which the device could be permanently damaged.

Absolute maximum ratings are stress ratings only and functional device operation is not implied.

2. Pulse width $\leq 10\text{ms}$, Duty cycle $< 50\%$.

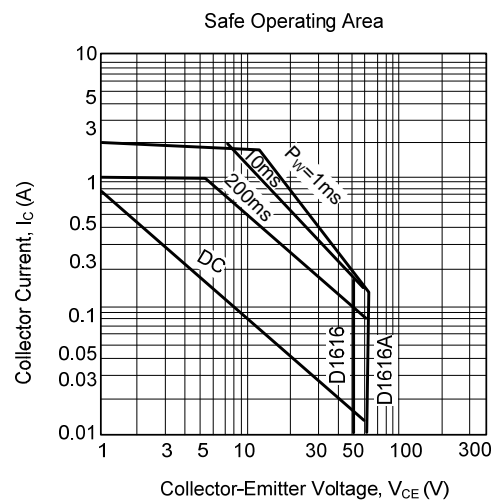
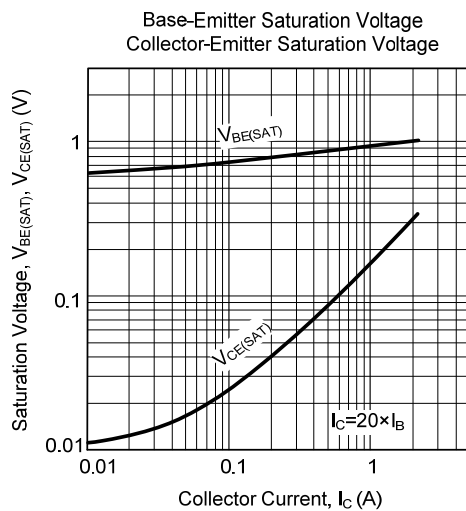
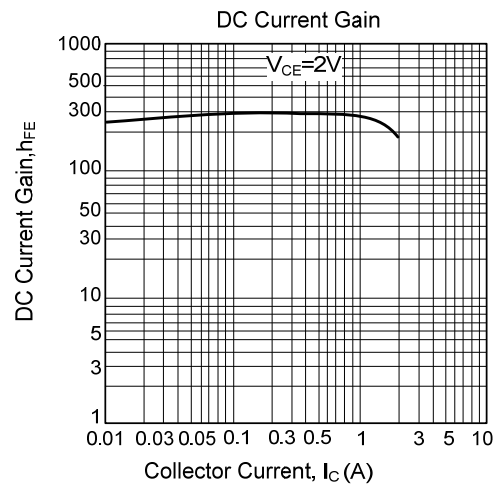
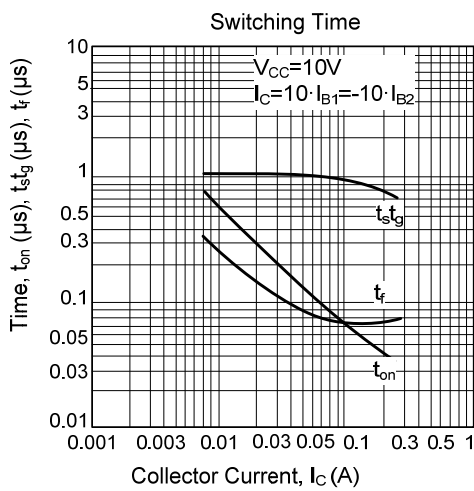
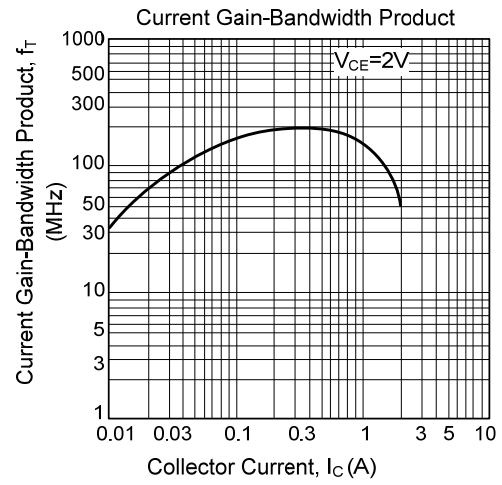
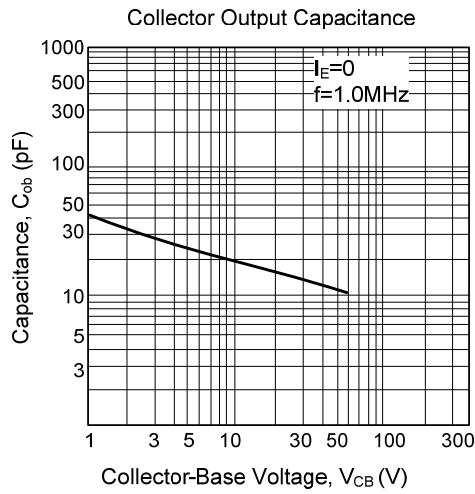
■ ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector Cut-Off Current	I_{CBO}	$V_{CB}=60\text{V}$			100	nA
Emitter Cut-Off Current	I_{EBO}	$V_{EB}=6\text{V}$			100	nA
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	$I_C=1\text{A}$, $I_B=50\text{mA}$		0.15	0.3	V
Base-Emitter Saturation Voltage	$V_{BE(SAT)}$	$I_C=1\text{A}$, $I_B=50\text{mA}$		0.9	1.2	V
Base Emitter On Voltage	$V_{BE(ON)}$	$V_{CE}=2\text{V}$, $I_C=50\text{mA}$	600	640	700	mV
DC Current Gain	h_{FE1}	$V_{CE}=2\text{V}$, $I_C=100\text{mA}$	135		600	
	h_{FE2}	$V_{CE}=2\text{V}$, $I_C=1\text{A}$	81			
Current Gain Bandwidth Product	f_T	$V_{CE}=2\text{V}$, $I_C=100\text{mA}$	100	160		MHz
Output Capacitance	C_{ob}	$V_{CB}=10\text{V}$, $f=1\text{MHz}$			19	pF
Turn On Time	t_{on}	$V_{CE}=10\text{V}$, $I_C=100\text{mA}$		0.07		us
Storage Time	t_s	$I_{B1}=-I_{B2}=10\text{mA}$		0.95		us
Fall Time	t_f	$V_{BE(off)}=-2\sim-3\text{V}$		0.07		us

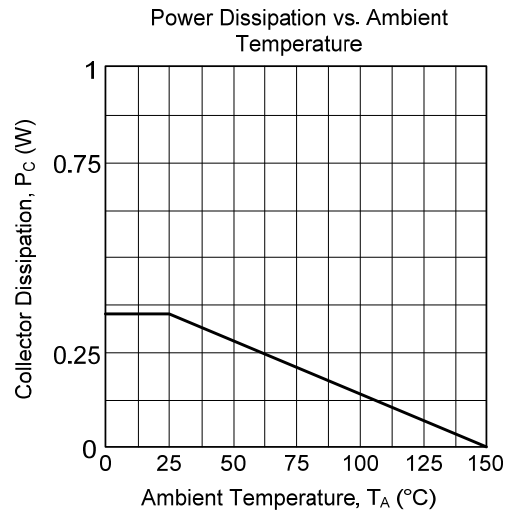
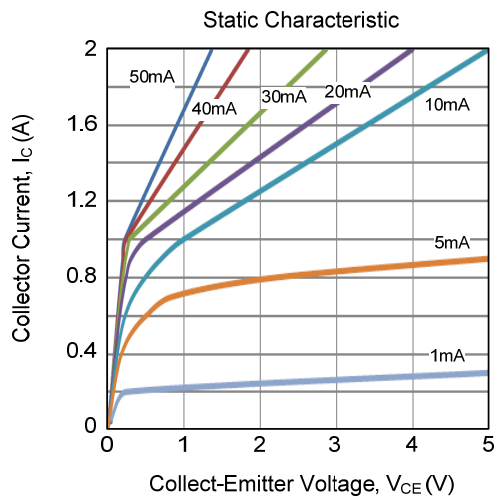
■ CLASSIFICATION OF h_{FE1}

RANK	Y	G	L
h_{FE1}	135-270	200-400	300-600

TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS



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