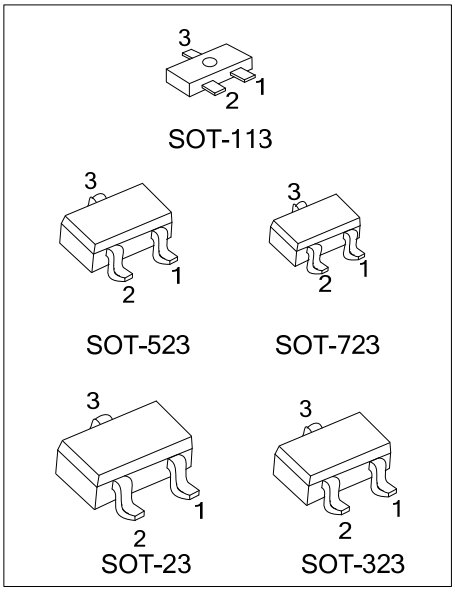
MMBT1815

NPN SILICON TRANSISTOR

HIGH FREQUENCY NPN AMPLIFIER TRANSISTOR



■ FEATURES

* Collector-Emitter Voltage: BV_{CEO}=50V
* Collector Current up to 150mA
* High h_{FE} Linearity
* Complement to MMBT1015

■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
MMBT1815L-x-AC3-R	MMBT1815G-x-AC3-R	SOT-113	E	B	C	Tape Reel
MMBT1815L-x-AE3-R	MMBT1815G-x-AE3-R	SOT-23	E	B	C	Tape Reel
MMBT1815L-x-AL3-R	MMBT1815G-x-AL3-R	SOT-323	E	B	C	Tape Reel
MMBT1815L-x-AN3-R	MMBT1815G-x-AN3-R	SOT-523	E	B	C	Tape Reel
MMBT1815L-x-AQ3-R	MMBT1815G-x-AQ3-R	SOT-723	E	B	C	Tape Reel

MMBT1815L-x-AC3-R

(1)Packing Type
(2)Package Type
(3)Rank
(4)Lead Free

(1) R: Tape Reel

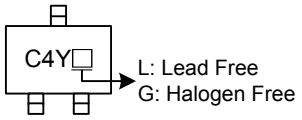
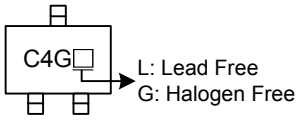
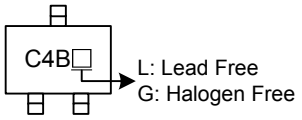
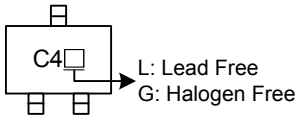
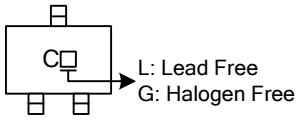
(2) AC3: SOT-113, AE3: SOT-23, AL3: SOT-323, AN3: SOT-523, AQ3: SOT-723

(3) x: refer to Classification of h_{FE1}

(4) G: Halogen Free, L: Lead Free

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■ MARKING

<table>
<tr><td>PACKAGE</td><td colspan="3">MARKING</td></tr>
<tr><td rowspan="2">SOT-23</td><td>Y</td><td>GR</td><td>BL</td></tr>
<tr><td>
</td><td>
</td><td>
</td></tr>
<tr><td>SOT-113
SOT-323
SOT-523</td><td colspan="3">
</td></tr>
<tr><td>SOT-723</td><td colspan="3">
</td></tr>
</table>

■ ABSOLUTE MAXIMUM RATING (T_A=25°C , unless otherwise specified)

PARAMETER		SYMBOL	RATINGS	UNIT
Collector-Base Voltage		V_{CBO}	60	V
Collector-Emitter Voltage		V_{CEO}	50	V
Emitter-Base Voltage		V_{EBO}	5	V
Collector Dissipation (T_A=25°C)	SOT-23	P_C	250	mW
	SOT-523/SOT-113/SOT-323		200	
	SOT-723		190	
Collector Current		I_C	150	mA
Base Current		I_B	50	mA
Junction Temperature		T_J	150	°C
Storage Temperature		T_{STG}	-55 ~ +150	°C

Note 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.

■ ELECTRICAL CHARACTERISTICS (T_A=25°C, unless otherwise specified)

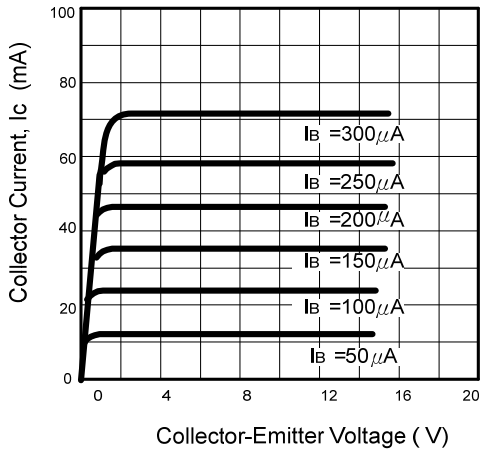
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-Base Breakdown Voltage	BV_{CBO}	I_C = 100μA, I_E = 0	50			V
Collector-Emitter Breakdown Voltage	BV_{CEO}	I_C = 10mA, I_B = 0	50			V
Emitter-Base Breakdown Voltage	BV_{EBO}	I_E = 10μA, I_C = 0	5			V
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	I_C = 100mA, I_B = 10mA		0.1	0.25	V
Base-Emitter Saturation Voltage	$V_{BE(SAT)}$	I_C = 100mA, I_B = 10mA			1.0	V
Collector Cut-off Current	I_{CBO}	V_{CB} = 60V, I_E = 0			100	nA
Emitter Cut-off Current	I_{EBO}	V_{EB} = 5V, I_C = 0			100	nA
DC Current Gain	h_{FE1}	V_{CE} = 6V, I_C = 2mA	120		700	
	h_{FE2}	V_{CE} = 6V, I_C = 150mA	25			
Transition Frequency	f_T	V_{CE} = 10V,Ic = 50mA	80			MHz
Output Capacitance	C_{OB}	V_{CB} = 10V, I_E = 0, f = 1MHz		2.0	3.0	pF
Noise Figure	NF	I_C = 0.1mA, V_{CE} = 6V R_G = 10kΩ, f = 100Hz		1.0	1.0	dB

■ CLASSIFICATION OF h_{FE1}

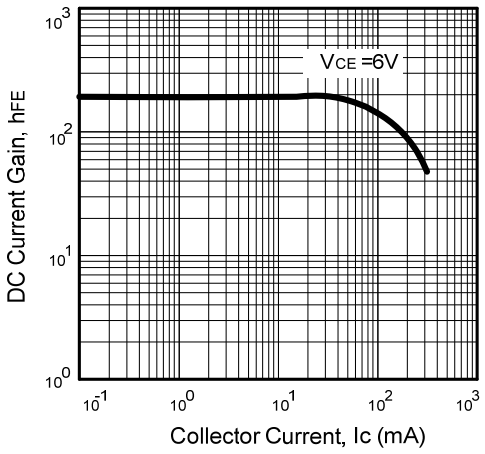
RANK	Y	GR	BL
RANGE	120-240	200-400	350-700

■ TYPICAL CHARACTERISTICS

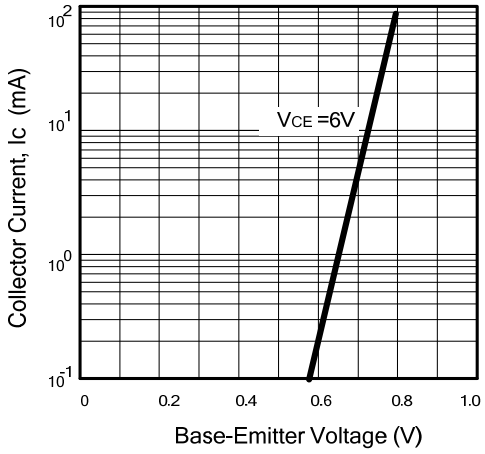
Static Characteristics



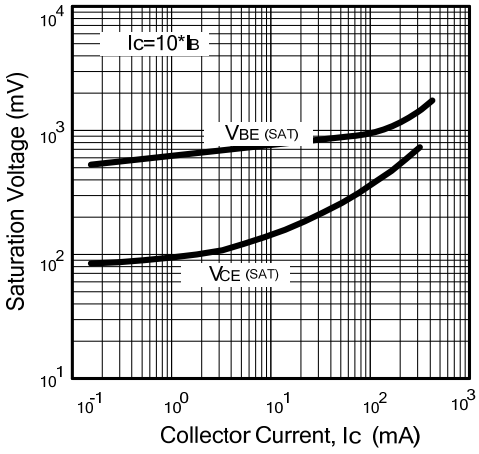
DC Current Gain



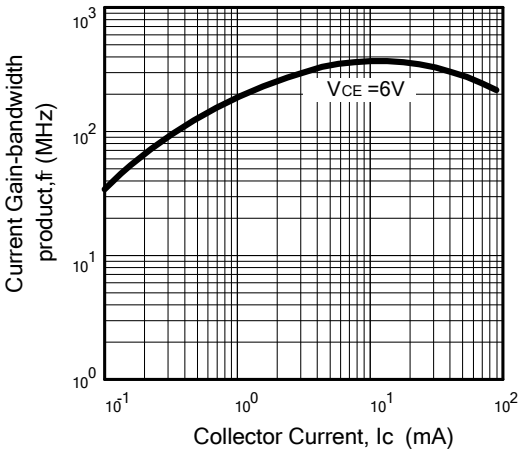
Base-Emitter On Voltage



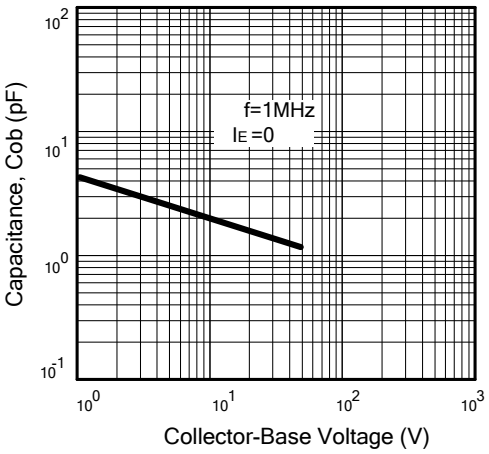
Saturation Voltage



Current Gain-Bandwidth Product



Collector Output Capacitance



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