



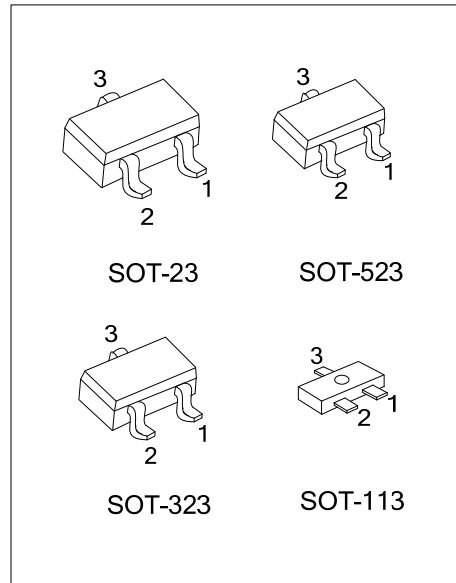
MMBT1815

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
Normal	Lead Free	Halogen Free		1	2	3	
MMBT1815-x-AC3-R	MMBT1815L-x-AC3-R	MMBT1815G-x-AC3-R	SOT-113	E	B	C	Tape Reel
MMBT1815-x-AE3-R	MMBT1815L-x-AE3-R	MMBT1815G-x-AE3-R	SOT-23	E	B	C	Tape Reel
MMBT1815-x-AL3-R	MMBT1815L-x-AL3-R	MMBT1815G-x-AL3-R	SOT-323	E	B	C	Tape Reel
MMBT1815-x-AN3-R	MMBT1815L-x-AN3-R	MMBT1815G-x-AN3-R	SOT-523	E	B	C	Tape Reel

<p>MMBT1815L-x-AC3-R</p>	<p>(1) R: Tape Reel</p> <p>(2) AC3: SOT-113, AE3: SOT-23, AL3: SOT-323, AN3: SOT-523</p> <p>(3) x: refer to Classification of h_{FE1}</p> <p>(4) G: Halogen Free, L: Lead Free, Blank: Pb/Sn</p>
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■ MARKING

PACKAGE	MARKING		
	Y	GR	BL
SOT-23			
SOT-113 SOT-323 SOT-523			

MMBT1815

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■ ABSOLUTE MAXIMUM RATING (Ta=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 (Ta=25°C)	SOT-23	P_C	250	mW
	SOT-523/SOT-113/SOT-323		200	mW
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 (Ta=25°C, unless otherwise specified)

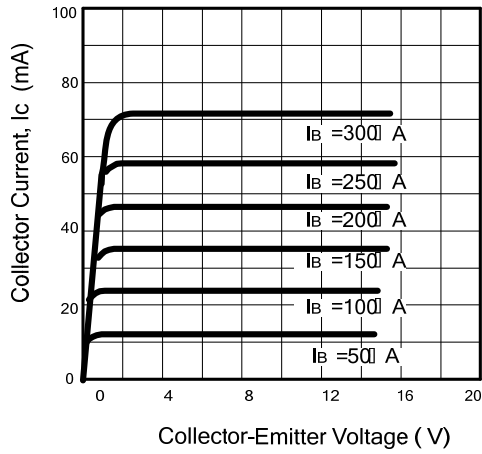
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-Base Breakdown Voltage	BV_{CBO}	$I_C = 100\mu A, I_E = 0$	50			V
Collector-Emitter Breakdown Voltage	BV_{CEO}	$I_C = 10mA, I_B = 0$	50			V
Emitter-Base Breakdown Voltage	BV_{EBO}	$I_E = 10\mu A, I_C = 0$	5			V
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	$I_C = 100mA, I_B = 10mA$		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	$V_{CE} = 10V, I_C = 50mA$	80			MHz
Output Capacitance	C_{OB}	$V_{CB} = 10V, I_E = 0, f = 1MHz$		2.0	3.0	pF
Noise Figure	NF	$I_C = 0.1mA, V_{CE} = 6V$ $R_G = 10k\Omega, f = 100Hz$		1.0	1.0	dB

■ CLASSIFICATION OF h_{FE1}

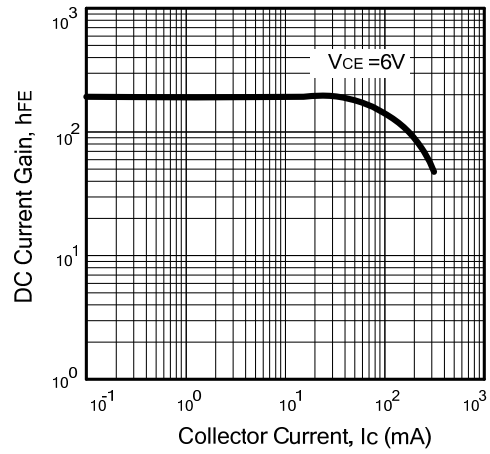
RANK	Y	GR	BL
RANGE	120-240	200-400	350-700

TYPICAL CHARACTERISTICS

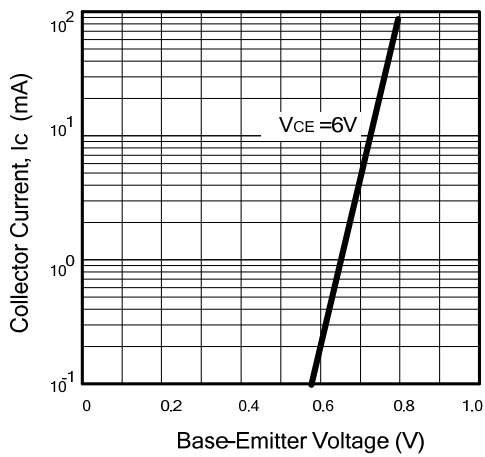
Static Characteristics



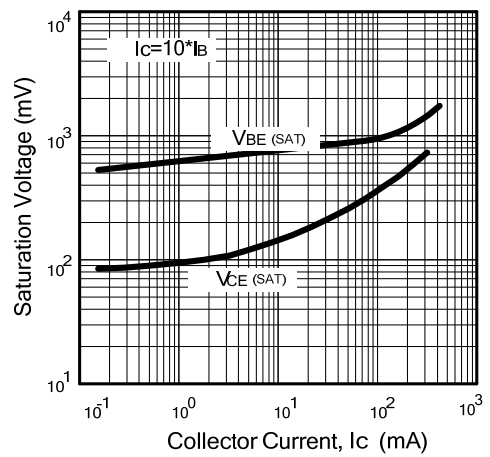
DC Current Gain



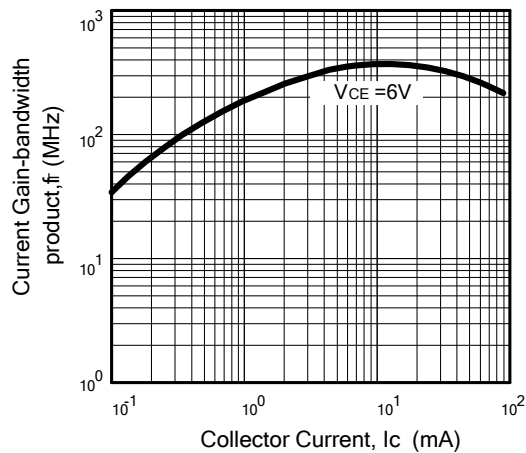
Base-Emitter On Voltage



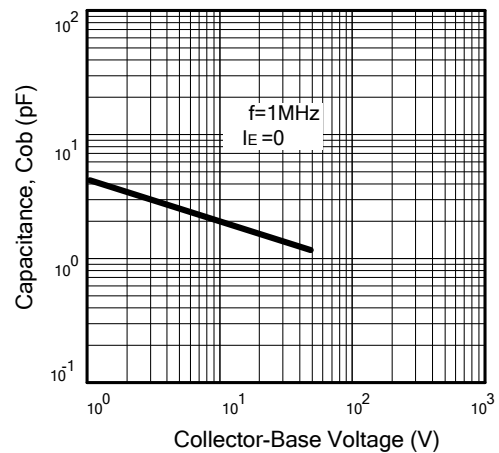
Saturation Voltage



Current Gain-Bandwidth Product



Collector Output Capacitance



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