



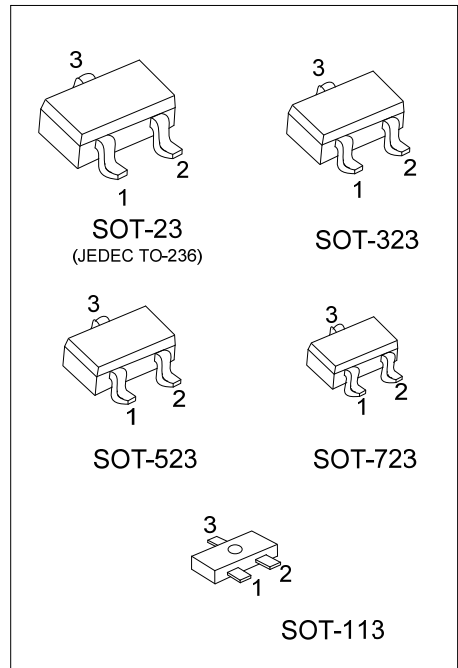
MMBT1815

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



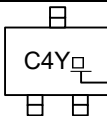
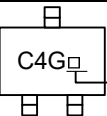
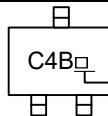
ORDERING INFORMATION

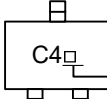
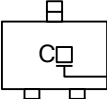
Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
MMBT1815L-x-AC3-R	MMBT1815G-x-AC3-R	SOT-113	B	E	C	Tape Reel
MMBT1815L-x-AE3-R	MMBT1815G-x-AE3-R	SOT-23	B	E	C	Tape Reel
MMBT1815L-x-AL3-R	MMBT1815G-x-AL3-R	SOT-323	B	E	C	Tape Reel
MMBT1815L-x-AN3-R	MMBT1815G-x-AN3-R	SOT-523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

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

MMBT1815G-x-AC3-R (1) Packing Type (2) Package Type (3) Rank (4) Green Package	(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 and Lead Free, L: Lead Free
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MARKING

PACKAGE	MARKING		
SOT-23	Y	GR	BL
	 L: Lead Free G: Halogen Free	 L: Lead Free G: Halogen Free	 L: Lead Free G: Halogen Free

SOT-113 / SOT-323 / SOT-523	SOT-723
 L: Lead Free G: Halogen Free	 L: Lead Free G: Halogen Free

■ **ABSOLUTE MAXIMUM RATING** ($T_A=25^{\circ}\text{C}$, 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 ($T_A=25^{\circ}\text{C}$)	SOT-23	P_C	250	mW
	SOT-523/SOT-113		200	mW
	SOT-323		190	mW
	SOT-723		190	mW
Collector Current		I_C	150	mA
Base Current		I_B	50	mA
Junction Temperature		T_J	+150	$^{\circ}\text{C}$
Storage Temperature		T_{STG}	-55 ~ +150	$^{\circ}\text{C}$

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.

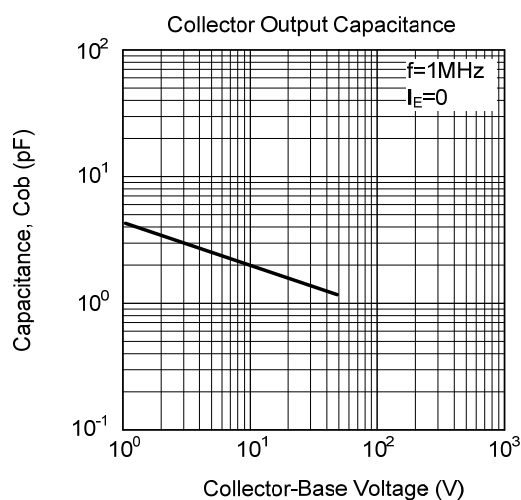
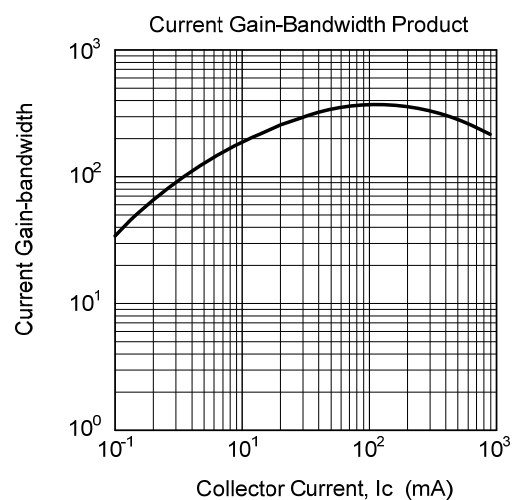
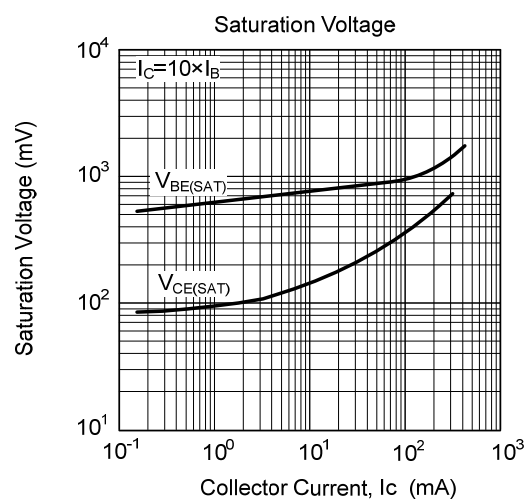
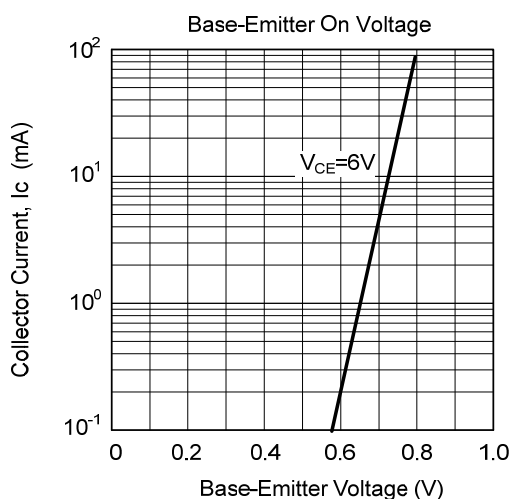
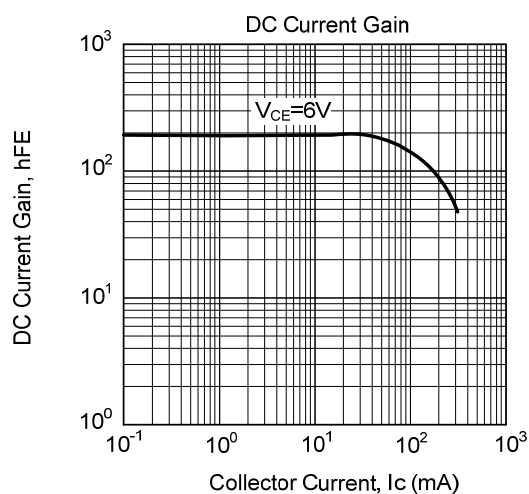
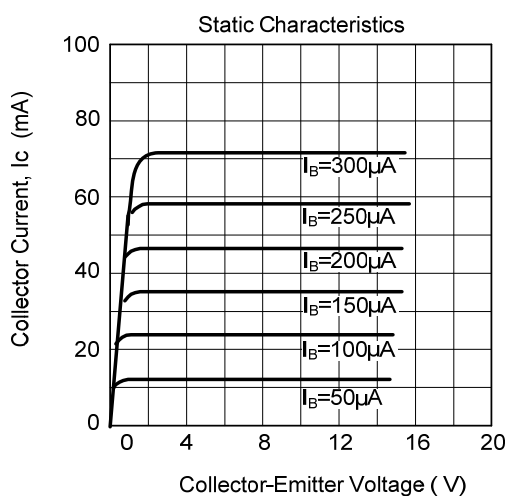
■ **ELECTRICAL CHARACTERISTICS** ($T_A=25^{\circ}\text{C}$, unless otherwise specified)

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

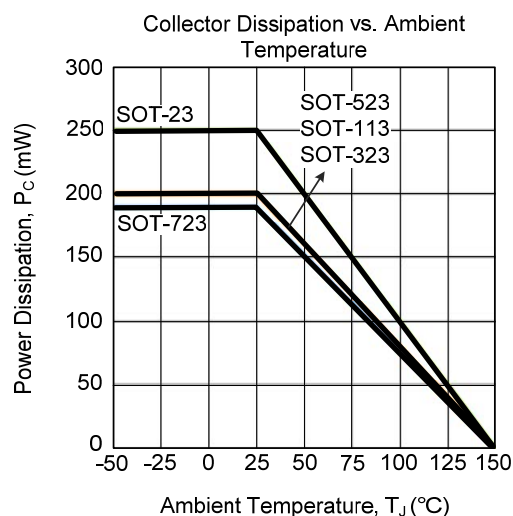
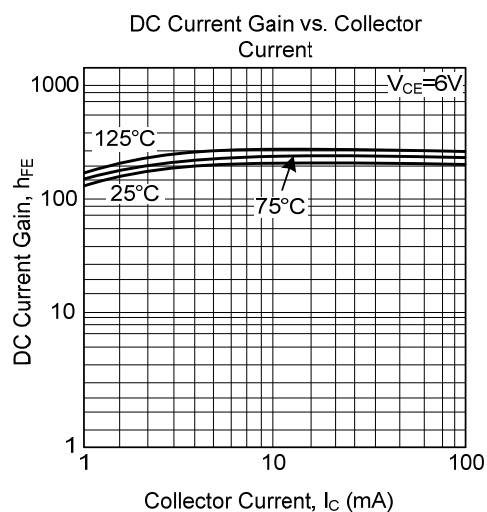
■ **CLASSIFICATION OF h_{FE1}**

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

TYPICAL CHARACTERISTICS



■ TYPICAL CHARACTERISTICS



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