



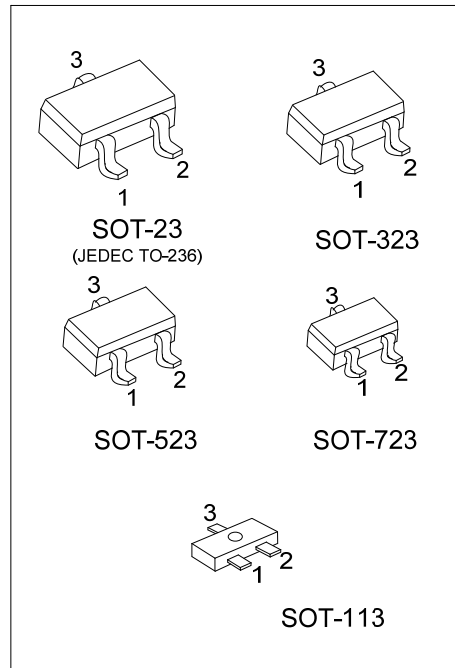
MMBT1015

PNP SILICON TRANSISTOR

LOW FREQUENCY PNP AMPLIFIER TRANSISTOR

■ FEATURES

- * Collector-Emitter Voltage: $BV_{CEO} = -50V$
- * Collector current up to 150mA
- * High h_{FE} linearity
- * Complement to MMBT1815



■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
MMBT1015L-x-AC3-R	MMBT1015G-x-AC3-R	SOT-113	B	E	C	Tape Reel
MMBT1015L-x-AE3-R	MMBT1015G-x-AE3-R	SOT-23	B	E	C	Tape Reel
MMBT1015L-x-AL3-R	MMBT1015G-x-AL3-R	SOT-323	B	E	C	Tape Reel
MMBT1015L-x-AN3-R	MMBT1015G-x-AN3-R	SOT-523	B	E	C	Tape Reel
MMBT1015L-x-AQ3-R	MMBT1015G-x-AQ3-R	SOT-723	B	E	C	Tape Reel

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

<p>MMBT1015G-x-AC3-R</p> <p>(1) Packing Type (2) Package Type (3) Rank (4) Green Package</p>	<p>(1) R: Tape Reel (2) AC3: SOT-113, AE3: SOT-23, AL3: SOT-323, AN3: SOT-523, AQ3: SOT-723, T92: TO-92 (3) x: refer to Classification of h_{FE1} (4) G: Halogen Free and Lead Free, L: Lead Free</p>
--	--

■ MARKING

PACKAGE	MARKING		
	Y	GR	BL
SOT-23			
SOT-113 / SOT-323 / SOT-523			
SOT-723			

MMBT1015

PNP SILICON TRANSISTOR

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

PARAMETER		SYMBOL	RATINGS	UNIT
Collector-Base Voltage		V_{CBO}	-50	V
Collector-Emitter Voltage		V_{CEO}	-50	V
Emitter-Base Voltage		V_{EBO}	-5	V
Collector Dissipation	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	+125	$^{\circ}\text{C}$
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)

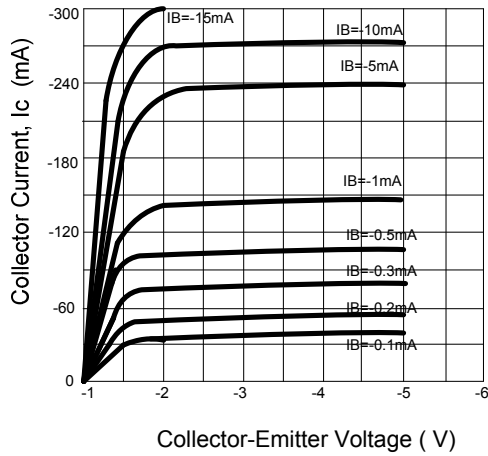
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-Base Breakdown Voltage	BV_{CBO}	$I_C = -100\mu\text{A}, I_E = 0$	-50			V
Collector-Emitter Breakdown Voltage	BV_{CEO}	$I_C = -10\text{mA}, I_B = 0$	-50			V
Emitter-Base Breakdown Voltage	BV_{EBO}	$I_E = -10\mu\text{A}, I_C = 0$	-5			V
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	$I_C = -100\text{mA}, I_B = -10\text{mA}$		-0.1	-0.3	V
Base-Emitter Saturation Voltage	$V_{BE(SAT)}$	$I_C = -100\text{mA}, I_B = -10\text{mA}$			-1.1	V
Collector Cut-off Current	I_{CBO}	$V_{CB} = -50\text{V}, I_E = 0$			-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	$V_{CE} = -10\text{V}, I_C = -1\text{mA}$	80			MHz
Output Capacitance	C_{OB}	$V_{CB} = -10\text{V}, I_E = 0, f = 1\text{MHz}$		4.0	7.0	pF
Noise Figure	NF	$I_C = -0.1\text{mA}, V_{CE} = -6\text{V}$ $R_G = 1\text{k}\Omega, f = 100\text{Hz}$		0.5	6	dB

■ CLASSIFICATION OF h_{FE1}

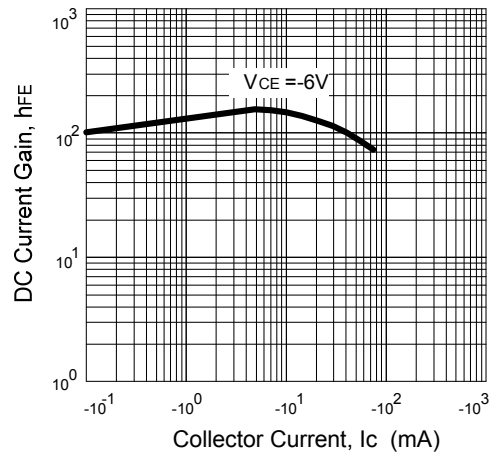
RANK	Y	GR	BL
RANGE	120-240	200-400	350-700

■ TYPICAL CHARACTERISTICS

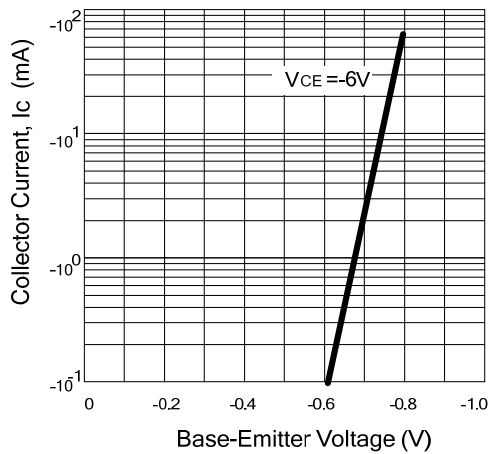
Static Characteristics



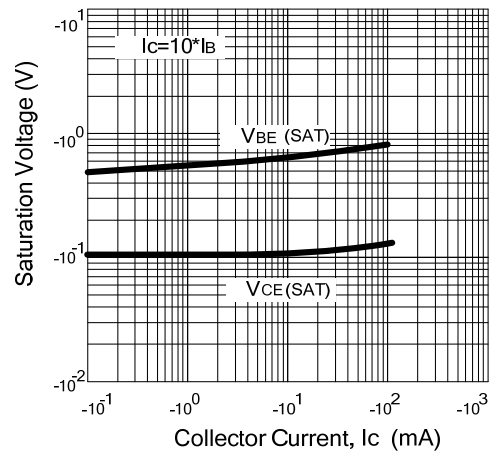
DC Current Gain



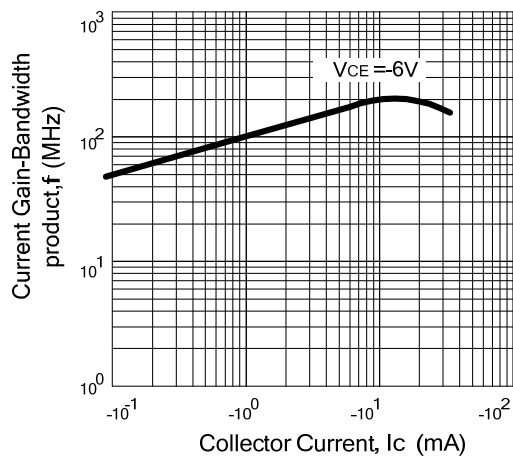
Base-Emitter on Voltage



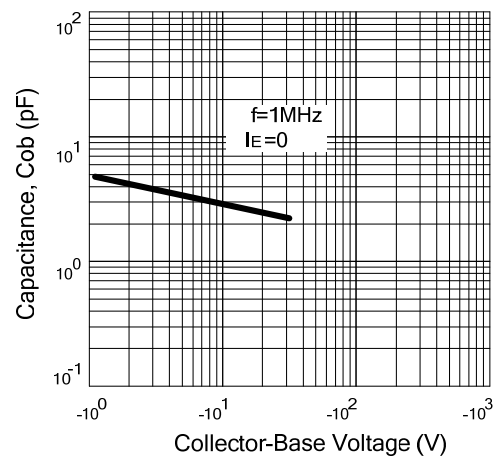
Saturation Voltage



Current Gain-Bandwidth Product



Collector Output Capacitance



UTC assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all UTC products described or contained herein. UTC products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. UTC reserves the right to make changes to information published in this document, including without limitation specifications and product descriptions, at any time and without notice. This document supersedes and replaces all information supplied prior to the publication hereof.