



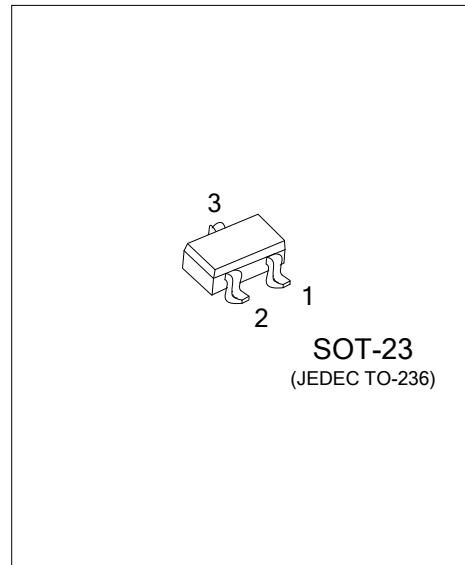
MMBT9015

PNP SILICON TRANSISTOR

PRE-AMPLIFIER, LOW LEVEL & LOW NOISE

■ FEATURES

- *High total power dissipation. (450mW)
- *Excellent h_{FE} linearity.
- *Complementary to UTC MMBT9014



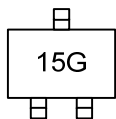
■ ORDERING INFORMATION

Ordering Number	Package	Pin Assignment			Packing
		1	2	3	
MMBT9015G-x-AE3-R	SOT-23	E	B	C	Tape Reel

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

<p>MMBT9015G-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_{FE} (4) G: Halogen Free and Lead Free</p>
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■ MARKING



MMBT9015

PNP SILICON TRANSISTOR

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

PARAMETER	SYMBOL	RATINGS	UNIT
Collector-Emitter Voltage	V_{CEO}	-45	V
Collector-Base Voltage	V_{CBO}	-50	V
Emitter Base Voltage	V_{EBO}	-5	V
Collector Current	I_C	-100	mA
Collector dissipation	P_C	225	mW
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-Emitter Voltage	V_{CEO}	$I_C=-100\mu\text{A}$, $I_E=0$	-50			V
Collector-Base Voltage	V_{CBO}	$I_C=-1\text{mA}$, $I_B=0$	-45			V
Emitter Base Voltage	V_{EBO}	$I_E=-100\mu\text{A}$, $I_C=0$	-5			V
Collector cutoff current	I_{CBO}	$V_{CB}=-50\text{V}$, $I_E=0$			-50	nA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=-5\text{V}$, $I_C=0$			-100	nA
DC Current Gain	h_{FE}	$V_{CE}=-5\text{V}$, $I_C=-1\text{mA}$	60	200	600	
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	$I_C=-100\text{mA}$, $I_B=-5\text{mA}$		-0.2	-0.7	V
Base-Emitter Saturation Voltage	$V_{BE(SAT)}$	$I_C=-100\text{mA}$, $I_B=-5\text{mA}$		-0.82	-1.0	V
Base-emitter on voltage	$V_{BE(ON)}$	$V_{CE}=-5\text{V}$, $I_C=-2\text{mA}$	-0.6	-0.65	-0.75	V
Current-Gain-Bandwidth Product	f_T	$V_{CE}=-5\text{V}$, $I_C=-10\text{mA}$	100	190		MHz
Output Capacitance	C_{OB}	$V_{CB}=-10\text{V}$, $I_E=0$, $f=1\text{MHz}$		4.5	7.0	pF
Noise Figure	NF	$V_{CE}=-5\text{V}$, $I_C=-0.2\text{mA}$, $f=1\text{KHz}$, $R_S=-1\text{K}\Omega$		0.7	10	dB

■ CLASSIFICATION OF h_{FE}

RANK	A	B	C
RANGE	60-150	100-300	200-600

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