

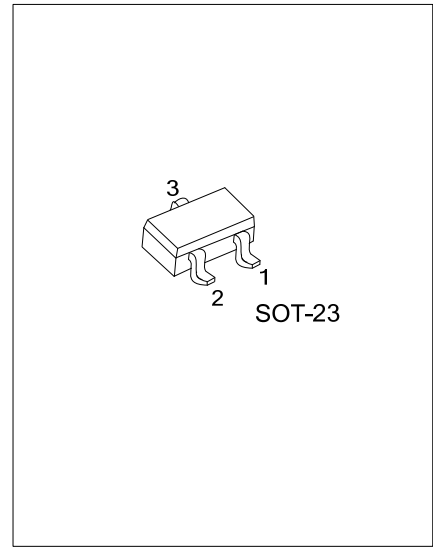


UNISONIC TECHNOLOGIES CO., LTD

MMBT9013

NPN SILICON TRANSISTOR

1W OUTPUT AMPLIFIER OF
PORTABLE RADIOS IN CLASS
B PUSH-PULL OPERATION



FEATURES

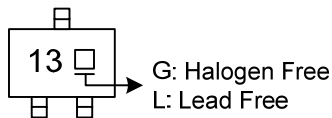
- *High total Power Dissipation. (625mW)
- *High Collector Current. (500mA)
- *Excellent h_{FE} linearity.
- *Complementary to UTC MMBT9012

ORDERING INFORMATION

Ordering Number			Package	Pin Assignment			Packing
Normal	Lead Free	Halogen Free		1	2	3	
MMBT9013-x-AE3-R	MMBT9013L-x-AE3-R	MMBT9013G-x-AE3-R	SOT-23	E	B	C	Tape Reel

<p>MMBT9013L-x-AE3-R</p> <p>(1) Packing Type (2) Package Type (3) Rank (4) Lead Free</p>	<p>(1) R: Tape Reel (2) AE3: SOT-23 (3) x: refer to Classification of h_{FE} (4) G: Halogen Free L: Lead Free, Blank: Pb/Sn</p>
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MARKING



MMBT9013

NPN SILICON TRANSISTOR

■ ABSOLUTE MAXIMUM RATINGS (Ta=25°C, unless otherwise specified)

PARAMETER	SYMBOL	RATING	UNIT
Collector-Base Voltage	V _{CBO}	40	V
Collector-Emitter Voltage	V _{CEO}	20	V
Emitter-Base Voltage	V _{EBO}	5	V
Collector Current	I _C	500	mA
Collector Dissipation	P _C	225	mW
Junction Temperature	T _J	+150	°C
Storage Temperature	T _{STG}	-55 ~ +150	°C

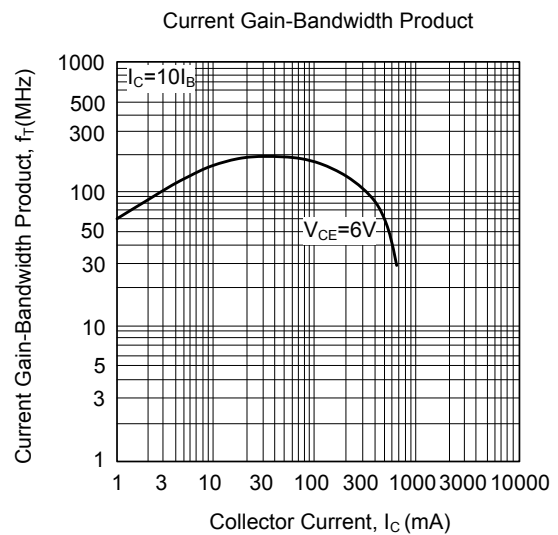
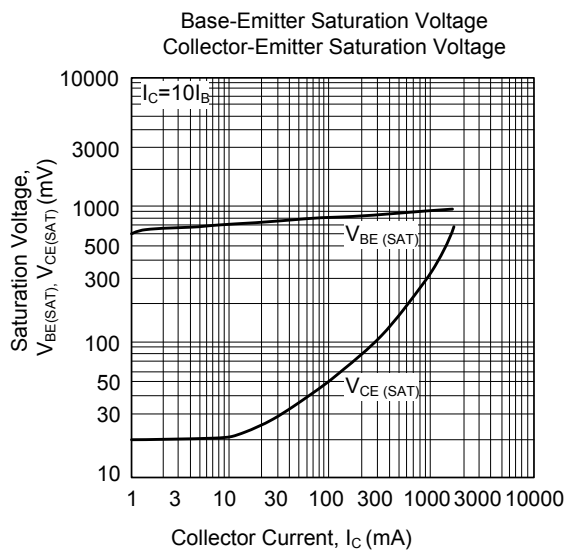
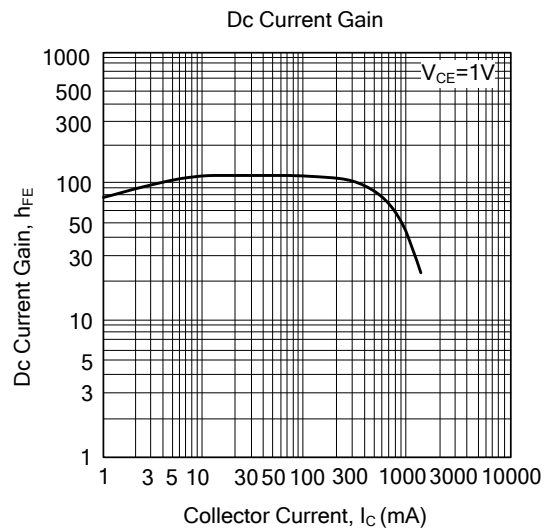
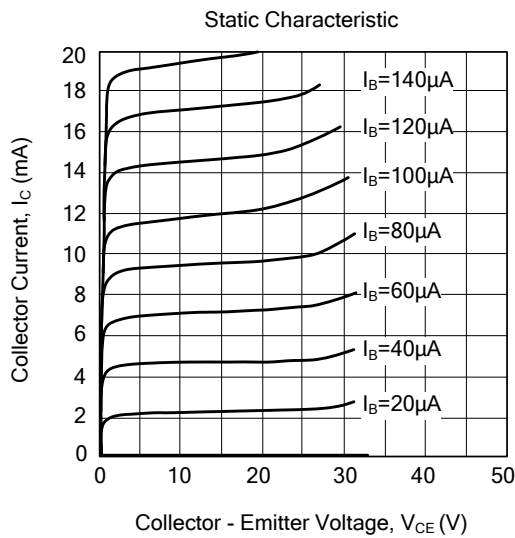
■ ELECTRICAL CHARACTERISTICS (Ta=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-Base Breakdown Voltage	BV _{CBO}	I _C =100μA, I _E =0	40			V
Collector-Emitter Breakdown Voltage	BV _{CEO}	I _C =1mA, I _B =0	20			V
Emitter-Base Breakdown Voltage	BV _{EBO}	I _E =100μA, I _C =0	5			V
Collector-Emitter Saturation Voltage	V _{CE(SAT)}	I _C =500mA, I _B =50mA		0.16	0.6	V
Base-Emitter Saturation Voltage	V _{BE(SAT)}	I _C =500mA, I _B =50mA		0.91	1.2	V
Base-Emitter On Voltage	V _{BE(ON)}	V _{CE} =1V, I _C =10mA	0.6	0.67	0.7	V
Collector Cutoff Current	I _{CBO}	V _{CB} =25V, I _E =0			100	nA
Emitter Cutoff Current	I _{EBO}	V _{EB} =3V, I _C =0			100	nA
DC Current Gain	h _{FE1}	V _{CE} =1V, I _C =50mA	64	120	300	
	h _{FE2}	V _{CE} =1V, I _C =500mA	40	120		

■ CLASSIFICATION OF h_{FE1}

RANK	D	E	F	G	H	I
RANGE	64-91	78-112	96-135	112-166	144-202	190-300

TYPICAL CHARACTERISTICS



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