



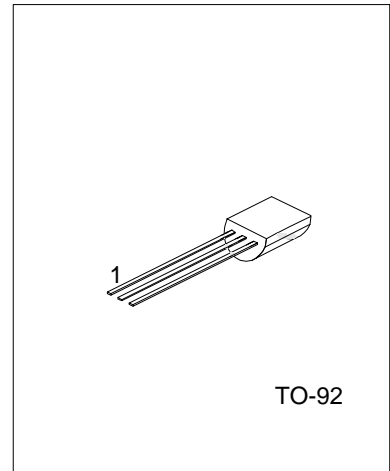
## 9013

## NPN EPITAXIAL SILICON TRANSISTOR

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

#### ■ FEATURES

- \* High total power dissipation. (625mW)
- \* High collector current. (500mA)
- \* Excellent  $h_{FE}$  linearity.
- \* Complementary to UTC **9012**



#### ■ ORDERING INFORMATION

Ordering Number			Package	Pin Assignment			Packing
Normal	Lead Free	Halogen Free		1	2	3	
9013-x-T92-B	9013L-x-T92-B	9013G-x-T92-B	TO-92	E	B	C	Tape Box
9013-x-T92-K	9013L-x-T92-K	9013G-x-T92-K	TO-92	E	B	C	Bulk
9013-x-T92-R	9013L-x-T92-R	9013G-x-T92-R	TO-92	E	B	C	Tape Reel

Note: xx: Output Voltage, refer to Marking Information.

<p>9013L-x-T92-B</p> <p>(1)Packing Type (2)Package Type (3)Rank (4)Lead Free</p>	<p>(1) R: Tape Box (2) T92: TO-92 (3) x: refer to Classification of <math>h_{FE}</math> (4) G: Halogen Free L: Lead Free, Blank: Pb/Sn</p>
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■ ABSOLUTE MAXIMUM RATING (Ta=25°C, unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	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	$P_C$	625	mW
Junction Temperature	$T_J$	125	°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	$BV_{CBO}$	$I_C = -100\mu A, I_E = 0$	40			V
Collector-emitter breakdown voltage	$BV_{CEO}$	$I_C = 1mA, I_B = 0$	20			V
Emitter-base breakdown voltage	$BV_{EBO}$	$I_E = 100\mu A, I_C = 0$	5			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		
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

■ CLASSIFICATION OF  $h_{FE1}$

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

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