



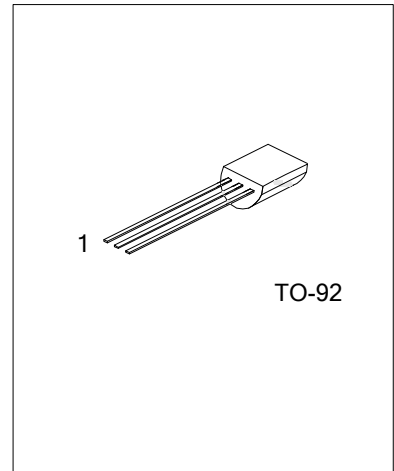
## 9014

## NPN SILICON TRANSISTOR

### PRE-AMPLIFIER, LOW LEVEL & LOW NOISE

#### FEATURES

- \* High total power dissipation. (450mW)
- \* Excellent  $h_{FE}$  linearity.
- \* Complementary to UTC **9015**



#### ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
9014L-x-T92-B	9014G-x-T92-B	TO-92	E	B	C	Tape Box
9014L-x-T92-K	9014G-x-T92-K	TO-92	E	B	C	Bulk

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

<p>9014L-x-T92-B</p>	<p>(1) B: Tape Box, K: Bulk</p> <p>(2) T92: TO-92</p> <p>(3) x: refer to Classification of <math>h_{FE}</math></p> <p>(4) L: Lead Free, G: Halogen Free</p>
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#### MARKING INFORMATION

PACKAGE	MARKING
TO-92	<p>Rank ← → Data Code</p> <p>1</p> <p>UTC 9014 □ □ □ □ □</p> <p>L: Lead Free G: Halogen Free</p>

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

PARAMETER	SYMBOL	RATINGS	UNIT
Collector-Base Voltage	$V_{CBO}$	50	V
Collector-Emitter Voltage	$V_{CEO}$	45	V
Emitter-Base Voltage	$V_{EBO}$	5	V
Collector Current	$I_C$	100	mA
Collector Dissipation	$P_C$	450	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.

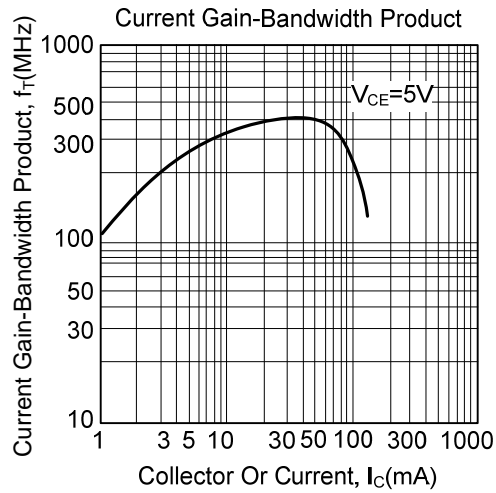
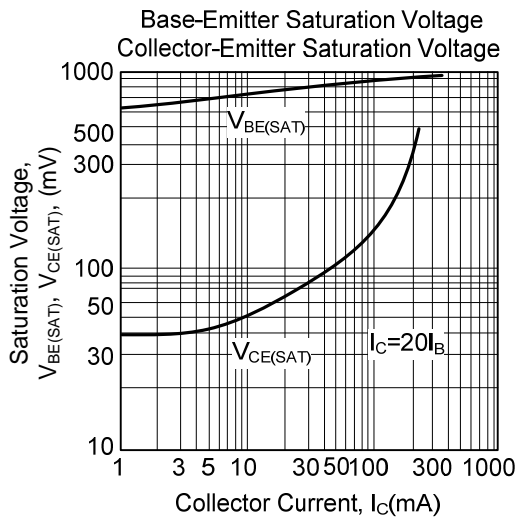
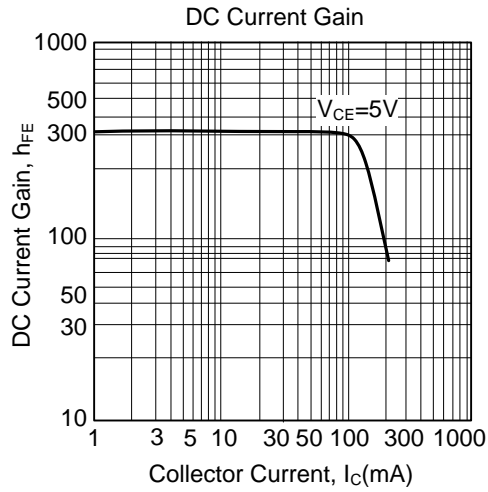
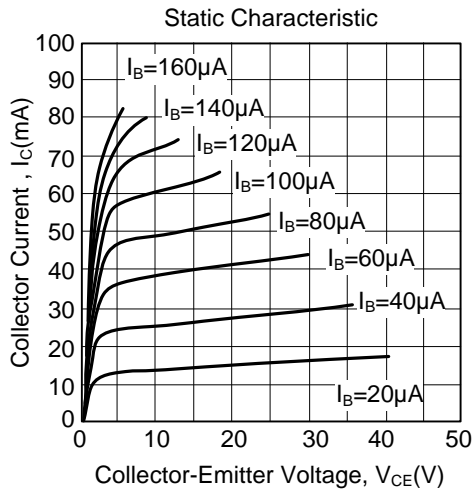
■ ELECTRICAL CHARACTERISTICS ( $T_A=25^\circ\text{C}$ , unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Collector-Base Breakdown Voltage	$BV_{CBO}$	$I_C=100\mu\text{A}$ , $I_E=0$	50			V
Collector-Emitter Breakdown Voltage	$BV_{CEO}$	$I_C=1\text{mA}$ , $I_B=0$	45			V
Emitter-Base Breakdown Voltage	$BV_{EBO}$	$I_E=100\mu\text{A}$ , $I_C=0$	5			V
Collector Cut-Off Current	$I_{CBO}$	$V_{CB}=50\text{V}$ , $I_E=0$			50	nA
Emitter Cut-Off 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	280	1000	
Collector-Emitter saturation voltage	$V_{CE(SAT)}$	$I_C=100\text{mA}$ , $I_B=5\text{mA}$		0.14	0.3	V
Base-Emitter saturation voltage	$V_{BE(SAT)}$	$I_C=100\text{mA}$ , $I_B=5\text{mA}$		0.84	1.0	V
Base-Emitter on voltage	$V_{BE(ON)}$	$V_{CE}=5\text{V}$ , $I_C=2\text{mA}$	0.58	0.63	0.7	V
Output Capacitance	$C_{ob}$	$V_{CB}=10\text{V}$ , $I_E=0$ , $f=1\text{MHz}$		2.2	3.5	pF
Current Gain-Bandwidth Product	$f_T$	$V_{CE}=5\text{V}$ , $I_C=10\text{mA}$	150	270		MHz
Noise Figure	NF	$V_{CE}=5\text{V}$ , $I_C=0.2\text{mA}$ $f=1\text{KHz}$ , $R_S=2\text{K}\Omega$		0.9	10	dB

■ CLASSIFICATION OF  $h_{FE}$

RANK	A	B	C	D
RANGE	60-150	100-300	200-600	400-1000

■ TYPICAL CHARACTERISTICS



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