

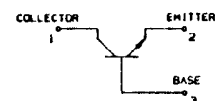


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NEW ENGLAND SEMICONDUCTOR

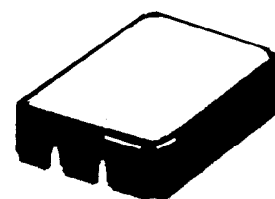
NCC2907AUA

SURFACE MOUNT SMALL SIGNAL NPN TRANSISTORS

- Hermetic Ceramic Package
- Screening to SX Level Available
- Electrical Specifications Similar to 2N2907A
- Group B and C Testing Available



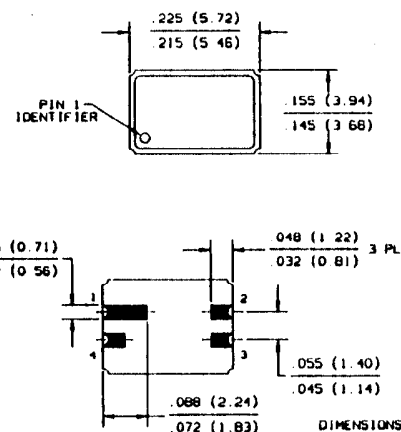
CIRCUIT DIAGRAM



4 PIN LCC

MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Rating	Symbol	NCC2907AUA	Unit
Collector-Emitter Voltage	V_{CE}	60	Vdc
Emitter-Base Voltage	V_{EB}	5.0	Vdc
Collector-Base Voltage	V_{CB}	60	Vdc
Collector Current - Continuous	I_C	600	mA
Total Power Dissipation @ $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	0.4	Watts $W/^\circ\text{C}$
Operating and Storage Junction Temperature Range	T_J, T_{stg}	-65°C to $+200^\circ\text{C}$	$^\circ\text{C}$



DIMENSIONS ARE IN INCHES (MILLIMETERS)

MECHANICAL OUTLINE

PRODUCT DESCRIPTION

The NCC2907AUA is a small signal NPN Transistor packaged in a 4 pin hermetically sealed ceramic leadless chip carrier. The Electrical Characteristics of each chip are similar to the MIL -S-19500/291 (2N2907A).

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6 Lake Street Lawrence, MA 01841
1-800-446-1158 / (978) 794-1666 / FAX: (978) 689-0803

T4-4.8-860-012 REV: --



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NCC2907AUA

Electrical Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise noted)

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
Off Characteristics						
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	60			V	$I_C = 10.0 \mu A, I_E = 0$
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	60			V	$I_C = 10.0 mA, I_B = 0^{(3)}$
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	5.0			V	$I_E = 10.0 \mu A, I_C = 0$
I_{CBO}	Collector-Base Cutoff Current			10.0	nA	$V_{CB} = 50 V, I_E = 0$
				10.0	μA	$V_{CB} = 50 V, I_E = 0, T_A = 150^{\circ}C$
I_{EBO}	Emitter-Base Cutoff Current			50	nA	$V_{CE} = 3.5 V, I_C = 0$
I_{CES}	Collector-Emitter Cutoff Current			50	nA	$V_{EB} = 30 V$
On Characteristics						
h_{FE}	Forward Current Transfer Ratio	75			-	$V_{CE} = 10.0 V, I_C = 0.1 mA$
		100		450	-	$V_{CE} = 10.0 V, I_C = 1.0 mA$
		100			-	$V_{CE} = 10.0 V, I_C = 10.0 mA$
		100		300	-	$V_{CE} = 10.0 V, I_C = 150 mA^{(3)}$
		50			-	$V_{CE} = 10.0 V, I_C = 500 mA^{(3)}$
		50			-	$V_{CE} = 10.0 V, I_C = 1.0 mA, T_A = -55^{\circ}C$
$V_{CE(SAT)}$	Collector-Emitter Saturation Voltage			0.40	V	$I_C = 150 mA, I_B = 15 mA^{(3)}$
				1.60	V	$I_C = 500 mA, I_B = 50 mA^{(3)}$
$V_{BE(SAT)}$	Base-Emitter Saturation Voltage			1.30	V	$I_C = 150 mA, I_B = 15 mA^{(3)}$
				2.60	V	$I_C = 500 mA, I_B = 50 mA^{(3)}$
Small-Signal Characteristics						
h_{fe}	Small-Signal Forward Current Transfer Ratio	100			-	$V_{CE} = 10.0 V, I_C = 1.0 mA, f = 1.0 kHz$
$ h_{fe} $	Small-Signal Forward Current Transfer Ratio	2.0			-	$V_{CE} = 20 V, I_C = 50 mA, f = 100 MHz$
C_{obo}	Open Circuit Output Capacitance			8.0	pF	$V_{CB} = 10.0 V, 100 kHz \leq f \leq 1.0 MHz$
C_{ibo}	Input Capacitance (Output Open Capacitance)			30	pF	$V_{EB} = 2.0 V, 100 kHz \leq f \leq 1.0 MHz$
Switching Characteristics						
t_{on}	Turn-On Time			45	ns	$V_{CC} = 30 V, I_C = 150 mA, I_{B1} = 15 mA$
t_{off}	Turn-Off Time			300	ns	$V_{CC} = 30 V, I_C = 150 mA, I_{B1} = I_{B2} = 15 mA$

(3) Pulse Test: Pulse Width $\leq 300 \mu\text{s}$, Duty Cycle $\leq 2.0\%$

SX LEVEL RELIABILITY TESTING

100 SCREENING	GROUP A	GROUP B (Sample)	GROUP C (Sample)
Internal Visual Temp Cycle Thermal Response Constant Acceleration PIND Fine and Gross Leak HTRB Power Burn In	Visual and Mechanical DC Static Tests 25°C DC Static Tests High Temp DC Static Tests Low Temp Dynamic Tests @ 25°C	Solderability Temp Cycle Fine and Gross Leak Bond Strength Intermittent Op Life Steady State Op life Thermal Resistance Hi-Temp (non operating)	Physical Dimensions Thermal Shock Terminal Strength Hermetic Seal Moisture Resistance Shock Test Vibration Test Constant Acceleration Salt Atmosphere Operation Life

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