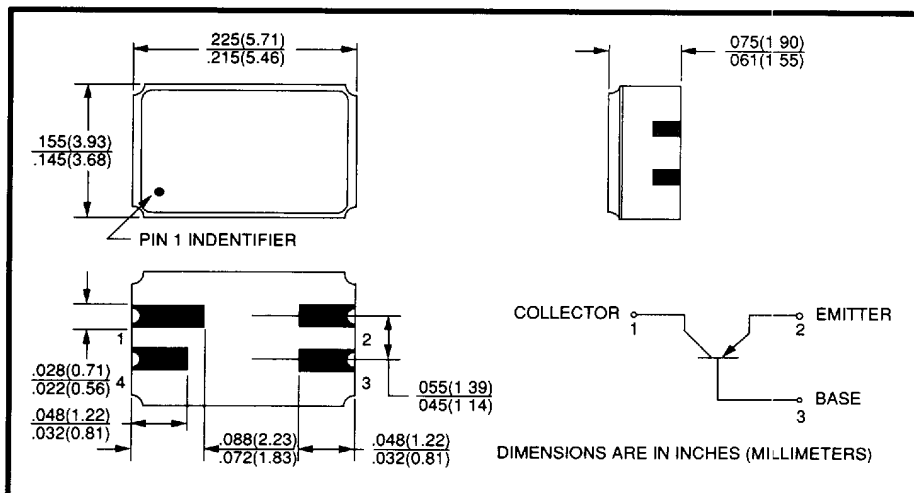
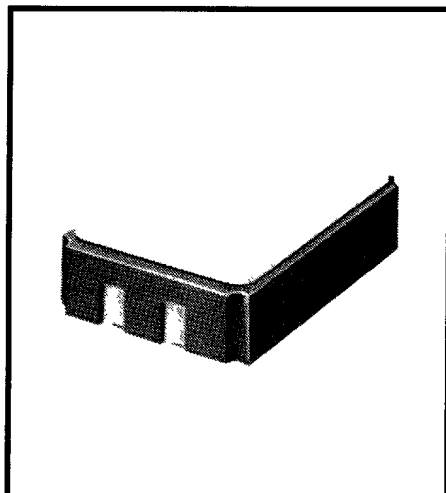


Surface Mount PNP General Purpose Transistor

Type HCT2907A

T-27-09



Features

- Surface mountable on ceramic or printed circuit board
- Miniature package to minimize circuit board area required
- Electrical performance similar to 2N2907A
- Hermetically sealed package
- Screened per MIL-S-19500 TX or TXV equivalent levels on request

Description

The HCT2907A is a hermetically sealed, ceramic surface-mount general purpose switching transistor, consisting of a 2N2907A silicon PNP transistor die. The HCT2907A electrical characteristics are equivalent to the MIL-S-19500/291 specification for the JAN2N2907A. The miniature four pin ceramic package is ideal for designs where board space and device weight are important design considerations.

High reliability processing per MIL-S-19500 TX or TXV equivalent levels on request.

Absolute Maximum Ratings ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Collector-Base Voltage	60 V
Collector-Emitter Voltage	60 V
Emitter-Base Voltage	5.0 V
Collector Current - Continuous	600 mA
Operating Junction Temperature (T_J)	-65°C to $+200^\circ\text{C}$
Storage Junction Temperature (T_{stg})	-65°C to $+200^\circ\text{C}$
Power Dissipation @ $T_A = 25^\circ\text{C}$	0.4 W
Power Dissipation @ $T_S^{(1)} = 25^\circ\text{C}$	1.0 W ⁽²⁾
Soldering Temperature (vapor phase reflow for 30 sec.)	215°C
Soldering Temperature (heated collet for 5 sec.)	260°C

Notes:

- (1) T_S = Substrate temperature that the chip carrier is mounted on.
- (2) Derate linearly 5.7 mW/°C above 25°C.

Type HCT2907A

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

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
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Off Characteristics

$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	60			V	$I_C = 10.0 \mu\text{A}, I_E = 0$
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	60			V	$I_C = 10.0 \text{ mA}, I_B = 0$
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	5.0			V	$I_E = 10.0 \mu\text{A}, I_C = 0$
I_{CBO}	Collector-Base Cutoff Current			10.0	nA	$V_{CB} = 50 \text{ V}, I_E = 0$
				10.0	μA	$V_{CB} = 50 \text{ V}, I_E = 0, T_A = 150^\circ\text{C}$
I_{EBO}	Emitter-Base Cutoff Current			50.0	nA	$V_{EB} = 3.5 \text{ V}, I_C = 0$

On Characteristics

h_{FE}	Forward-Current Transfer Ratio	75			-	$V_{CE} = 10.0 \text{ V}, I_C = 0.1 \text{ mA}$
		100		450	-	$V_{CE} = 10.0 \text{ V}, I_C = 1.0 \text{ mA}$
		100			-	$V_{CE} = 10.0 \text{ V}, I_C = 10.0 \text{ mA}$
		100		300	-	$V_{CE} = 10.0 \text{ V}, I_C = 150 \text{ mA}^{(3)}$
		50			-	$V_{CE} = 10.0 \text{ V}, I_C = 500 \text{ mA}^{(3)}$
		50			-	$V_{CE} = 10.0 \text{ V}, I_C = 1.00 \text{ mA}, T_A = -55^\circ\text{C}$
$V_{CE(SAT)}$	Collector-Emitter Saturation Voltage			0.40	V	$I_C = 150 \text{ mA}, I_B = 15 \text{ mA}^{(3)}$
				1.60	V	$I_C = 500 \text{ mA}, I_B = 50 \text{ mA}^{(3)}$
$V_{BE(SAT)}$	Base-Emitter Saturation Voltage			1.30	V	$I_C = 150 \text{ mA}, I_B = 15 \text{ mA}^{(3)}$
				2.60	V	$I_C = 500 \text{ mA}, I_B = 50 \text{ mA}^{(3)}$

Small-Signal Characteristics

h_{fe}	Small-Signal Forward Current Transfer Ratio	100			-	$V_{CE} = 10.0 \text{ V}, I_C = 1.00 \text{ mA}, f = 1.00 \text{ kHz}$
$ h_{fe} $	Small-Signal Forward Current Transfer Ratio	2.0			-	$V_{CE} = 20 \text{ V}, I_C = 50 \text{ mA}, f = 100 \text{ MHz}$
C_{ob0}	Open Circuit Output Capacitance			8.0	pF	$V_{CB} = 10.0 \text{ V}, 100 \text{ kHz} \leq f \leq 1.0 \text{ MHz}$
C_{ib0}	Input Capacitance (Output Open Capacitance)		30		pF	$V_{EB} = 2.0 \text{ V}, 100 \text{ kHz} \leq f \leq 1.0 \text{ MHz}$

Switching Characteristics

t_{on}	Turn-On Time			45	ns	$V_{CC} = 30 \text{ V}, I_C = 150 \text{ mA}, I_{B1} = 15 \text{ mA}$
t_{off}	Turn-Off Time			300	ns	$V_{CC} = 30 \text{ V}, I_C = 150 \text{ mA}, I_{B1} = I_{B2} = 15 \text{ mA}$

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

Optek reserves the right to make changes at any time in order to improve design and to supply the best product possible.

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