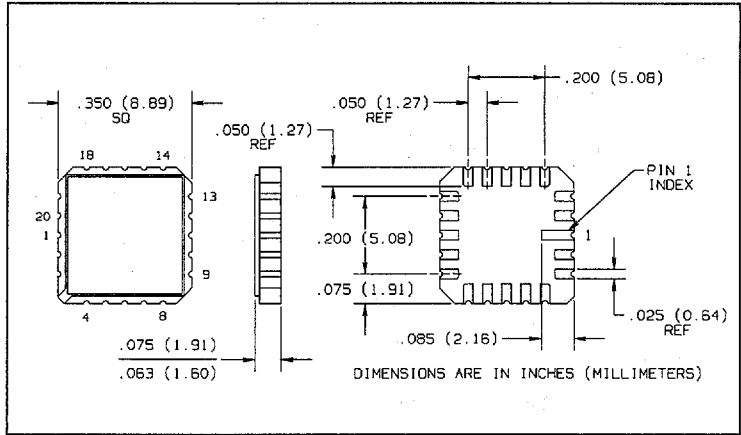
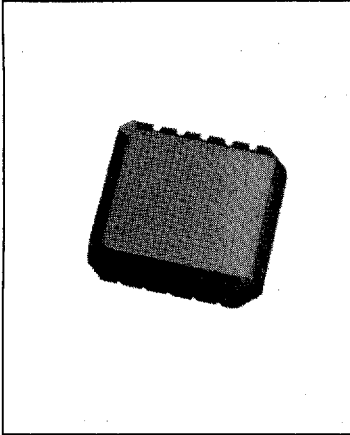


# Surface Mount Quad PNP Transistor

## Type HCT790



### Feature

- Four independent transistors in a 0.35 inch, square ceramic package
- Surface mountable on ceramic or printed circuit board
- Electrical performance similar to a 2N2907A
- Hermetically sealed package
- Screened per MIL-S-19500 TX or TXV equivalent levels on request

### Description

The HCT790 is a 20 pad, hermetically sealed, ceramic surface-mount transistor array, consisting of a 2N2907A silicon PNP transistor die. The HCT790 electrical characteristics are similar to the MIL-S-19500/291 specification for the 2N2907A.

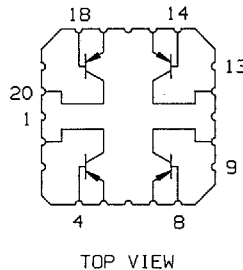
TX and TXV screening, if requested, will be performed similar to MIL-S-19500/558 per 2N6987 conditions. Order HCT790TX or HCT790TXV.

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

Collector-Base Voltage	60V
Collector-Emitter Voltage	60V
Emitter-Base Voltage	5.0V
Collector Current-Continuous	600mA
Isolation Voltage	500V <sub>DC</sub>
Operating Junction Temperature ( $T_J$ )	$-65^\circ\text{C}$ to $+200^\circ\text{C}$
Storage Junction Temperature ( $T_{stg}$ )	$-65^\circ\text{C}$ to $+200^\circ\text{C}$
Power Dissipation @ $T_A = 25^\circ\text{C}$ (four devices driven equally)	1.0W
Power Dissipation @ $T_S^{(1)} = 25^\circ\text{C}$ (four devices driven equally)	2.0W <sup>(2)</sup>
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 11.4mW/ $^\circ\text{C}$  above 25°C. This rating is provided as an aid to designers. It is dependent upon mounting material and methods and is not measurable as an outgoing test.



# Type HCT790

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

Symbol	Parameter	Min.	Max.	Units	Test Conditions
<b>Off Characteristics</b>					
$V_{(BR)CBO}$	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	$\mu\text{A}$	$V_{CB} = 50\text{V}, I_E = 0, T_A = 150^\circ\text{C}$
$I_{EBO}$	Emitter-Base Cutoff Current		50	nA	$V_{EB} = 3.5\text{V}, I_C = 0$
<b>On Characteristics</b>					
$h_{FE}$	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		—	$V_{CE} = 10.0\text{V}, I_C = 1.0\text{mA}, T_A = -55^\circ\text{C}$
$V_{CE(SAT)}$	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	$I_C = 500\text{mA}, I_B = 50\text{mA}^{(3)}$
<b>Small-Signal Characteristics</b>					
$h_{fe}$	Forward Current Transfer Ratio	100		—	$V_{CE} = 10.0\text{V}, I_C = 1.0\text{mA}, f = 1.0\text{kHz}$
$I_{hfeI}$	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)		30	pF	$V_{EB} = 2.0\text{V}, 100\text{kHz} \leq f \leq 1.0\text{MHz}$
<b>Switching Characteristics</b>					
$t_{on}$	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  $\leq 2.0\%$

H REL  
SURFACE  
MOUNT

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

Optek Technology, Inc. 1215 W. Crosby Road Carrollton, Texas 75006 (214)323-2200 Fax (214)323-2396