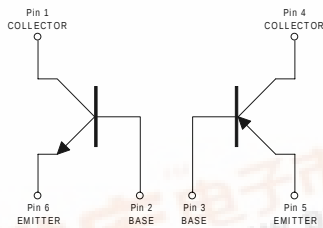
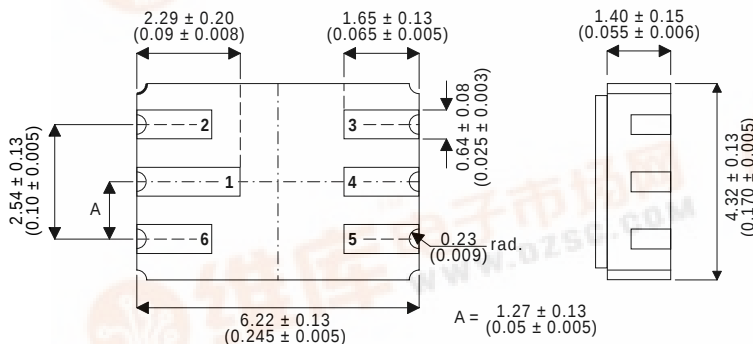
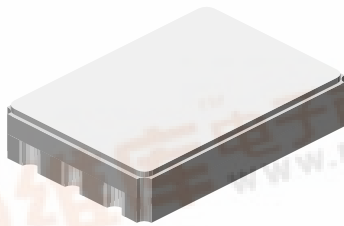


HCT700

MECHANICAL DATA

Dimensions in mm (inches)

LCC2 – Ceramic Surface Mount Package



COMPLEMENTARY SWITCHING TRANSISTORS IN A HERMETICALLY SEALED CERAMIC SURFACE MOUNT PACKAGE FOR HIGH RELIABILITY APPLICATIONS

FEATURES

- SILICON PLANAR EPITAXIAL NPN /PNP TRANSISTORS
- HERMETIC CERAMIC SURFACE MOUNT PACKAGE
- CECC SCREENING OPTIONS
- SPACE QUALITY LEVELS OPTIONS
- HIGH SPEED SATURATED SWITCHING

DESCRIPTION

Hermetically sealed surface mount complementary transistor pair.

The HCT700 transistor die have similar electrical characteristics to the 2N2222A on the NPN side and the 2N2907A on the PNP side.

The HCT700 is ideal for high reliability and space applications requiring small size and low weight devices.

ABSOLUTE MAXIMUM RATINGS(T_{case} = 25°C unless otherwise stated)

		NPN	PNP
V _{CBO}	Collector – Base Voltage	75	60
V _{CEO}	Collector – Emitter Voltage	50	60
V _{EBO}	Emitter – Base Voltage	6.0	5.0
I _C	Continuous Collector Current	800mA	600mA
P _D	Power Dissipation @ T _{amb} = 25°C	0.4W	
P _D	Power Dissipation @ T _{substrate} = 25°C	2.0W	
	Derate above 25°C	11.4mW / °C	
	NPN to PNP Isolation Voltage	500V	
	Operating and Storage Temperature Range	-65 to +200°C	
	Soldering temperature (Vapour phase reflow for 30 sec)	215°C	
	Soldering temperature (Heated collet for 5 sec)	260°C	



ELECTRICAL CHARACTERISTICS ($T_{amb} = 25^{\circ}\text{C}$ unless otherwise stated)

Parameter		Test Conditions		NPN		PNP		Unit	
				Min.	Max.	Min.	Max.		
Off Characteristics									
V _{(BR)CBO}	Collector – Base Breakdown Voltage	I _C = 10μA	I _E = 0	75		60		V	
V _{(BR)CEO}	Collector – Emitter Breakdown Voltage	I _C = 10mA	I _B = 0	50		60		V	
V _{(BR)EBO}	Emitter – Base Breakdown Voltage	I _E = 10μA	I _C = 0	6.0		5.0		V	
I _{CBO}	Collector – Base Cut-off Current	I _E = 0 T _{amb} = 25°C	V _{CB} = 60V		10			nA	
			V _{CB} = 50V				10		
		I _E = 0 T _{amb} = 150°C	V _{CB} = 60V		10			μA	
			V _{CB} = 50V				10		
I _{EBO}	Emitter– Base Cut-off Current	I _C = 0 T _{amb} = 25°C	V _{EB} = 4V		10			nA	
			V _{EB} = 3.5V				50		
I _{CES}	Collector – Emitter Cut-off Current	V _{CE} = 50V			1.0			μA	
On Characteristics									
h _{FE}	DC Current Gain	V _{CE} = 10V	I _C = 0.1mA	50		75			
		V _{CE} = 10V	I _C = 1mA	75	325	100	450		
		V _{CE} = 10V	I _C = 10mA	100		100			
		V _{CE} = 10V	I _C = 150mA ¹	100	300	100	300		—
		V _{CE} = 10V	I _C = 500mA ¹	30		50			
		V _{CE} = 10V T _{amb} = –55°C	I _C = 10mA	35					
			I _C = 1mA			50			
V _{CE(SAT)}	Collector – Emitter Saturation Voltage	I _C = 150mA	I _B = 15mA ¹		0.30		0.40	V	
		I _C = 500mA	I _B = 50mA ¹		1.00		1.60		
V _{BE(SAT)}	Base – Emitter Saturation Voltage	I _C = 150mA	I _B = 15mA ¹	0.60	1.20		1.30	V	
		I _C = 500mA	I _B = 50mA ¹		2.00		2.60		
Small Signal Characteristics									
h _{fe}	Small Signal Current Gain	V _{CE} = 10V f = 1kHz	I _C = 1mA	50		100		—	
h _{fe}	Small Signal Current Gain	V _{CE} = 20V f = 100MHz	I _C = 20mA	2.5				—	
			I _C = 50mA			2.0			
C _{obo}	Output Capacitance	V _{CE} = 10V f = 100kHz to 1MHz			8.0		8.0	pF	
C _{ibo}	Input Capacitance	V _{EB} = 2V f = 100kHz to 1MHz			25			pF	
		V _{EB} = 0.5V f = 100kHz to 1MHz					30		
Small Signal Characteristics									
t _{on}	Turn On Time	V _{CC} = 30V I _{B1} = 15mA	I _C = 150mA		35		45	ns	
t _{off}	Turn Off Time	V _{CC} = 30V I _C = 150mA I _{B1} = I _{B2} = 15mA			300		300	ns	

¹ Pulse Test: Pulse Width $\leq 300\text{ms}$, $\delta \leq 2\%$