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Silicon Complementary Unijunction Transistor

absolute maximum ratings: (25° C free air)

Voltage

• Interbase Voltage	30	V
• Emitter - Base 2 Voltage	8.0	V

Current (Note 2)

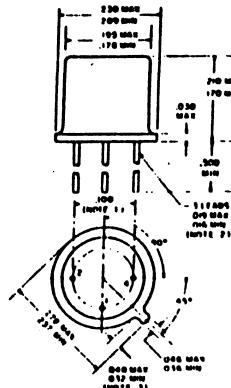
• Average Emitter (Forward)	150	mA
• Peak Emitter (Forward) (Note 1)	2	A
• Peak Reverse Emitter	15	mA

Power

• Average Total (Note 2)	300	mW
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Temperature

Operating	-55 to +150	°C
Storage	-55 to +200	°C



electrical characteristics: (25° C free air)

		Min.	Typ.	Max.	
• Intrinsic Standoff Ratio (Note 3)	η	0.58	0.60	0.62	
• Peak Point Voltage ($V_{BB} = 5V$)	V_P	3.2	3.45	3.7	Volts
($V_{BB} = 10V$)	V_P	6.1	6.45	6.8	Volts
• Interbase Resistance ($I_{BB} = 0.1mA$)	R_{BB}	5.5	6.8	8.2	kohms
• Emitter Breakdown Voltage ($I_{EBI} = 10\mu A$)	V_{EBIO}	5.0	15		kohms
• Peak Point Current ($V_{BB} = 10V$)	I_P	8.0	9.5		Volts
• Valley Point Current ($V_{BB} = 10V$)	I_V	1	2		mA
Emitter Reverse Current ($V_{EBI} = 5V$)	I_{EBIO}	0.1	10		nA
• Emitter Saturation Voltage ($I_E = 50mA, V_{BB} = 10V$)	$V_{E(SAT)}$	1.1	1.5		Volts
• Modulated Interbase Current ($I_E = 50mA, V_{BB} = 10V$)	$I_{BB(mod)}$	1.0	4	10	mA
• Peak Pulse Voltage (Note 4)	V_{OUT}	3.5	4.5		Volts
Diode Voltage Drop (Note 3)	V_D	.30	.45	.60	Volts
Minimum Charge to Trigger ($V_{BB} = 10V$)	Q_t		50		pC
Turn-on Time (See Figure 7)	t_{on}		1		μ sec.
Recovery Time (See Figure 7)	t_{rec}		10		μ sec.
Relaxation Oscillator Frequency Shift from 25°C Value (See Figure 1, $C = 0.1\mu F, R_{bb} = 950\Omega, V_s = 12.5V$)		0.2	0.6	%	
-15°C to +65°C		0.4	1.0	%	
-55°C to +150°C					

*JEDEC registered data

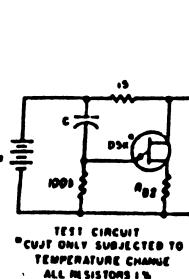
Notes:

- For capacitor discharge, resistor limiting is required for capacitors than $5\mu F$ and recommended for $> 10\mu F$. (A minimum of 15 ohms is required for good temperature stability.)
- Derate power and currents linearly to zero at maximum operating temperature.
- The intrinsic-standoff ratio (η) is essentially constant with temperature and interbase voltage. It and the associated diode drop of peak point voltage are defined by the equation

$$\eta = \frac{V_{P1} - V_{P2}}{V_{BB1} - V_{BB2}} \quad V_P = V_{P2} -$$

Where: $V_{BB1} = 10V \pm .001V$
 $V_{BB2} = 5V \pm .001V$

- The Base-One Peak Pulse Voltage is measured in the circuit shown in Figure 1. This specification is used to insure minimum pulse amplitude for applications in SCR firing circuits and other types of firing circuits.



TEST CIRCUIT
*CUST ONLY SUBJECTED TO
TEMPERATURE CHANGE
ALL RESISTORS 1%

FIGURE 1



FIGURE 2