

Silicon Complementary Unijunction Transistor



2N6114

2N6115

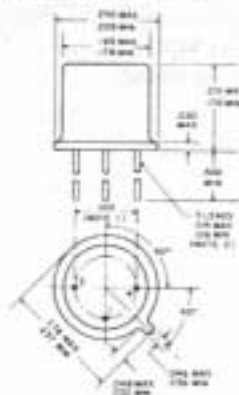
2N6218-24 SEE GES6218-24

COMPLEMENTARY UNIUNCTION

The General Electric Complementary Unijunction Transistor is a silicon planar, monolithic integrated circuit. It has unijunction characteristics with superior stability, a much tighter intrinsic-standoff ratio distribution and lower saturation voltage.

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



**DIMENSIONS WITHIN
AREAS OUTLINE TO BE
EXCEPT FOR
LEAD CONFIGURATION**

1. SEE DIMENSIONS OF LEAD AT A MINIMUM 1.5 mm
FROM THE BODY OF THE PACKAGE.
2. LEAD SPACING IS 2.54 mm (100 MILS) FROM THE
BODY OF THE PACKAGE.
3. LEAD SPACING IS 2.54 mm (100 MILS) FROM THE
BODY OF THE PACKAGE.
4. LEAD SPACING IS 2.54 mm (100 MILS) FROM THE
BODY OF THE PACKAGE.
5. LEAD SPACING IS 2.54 mm (100 MILS) FROM THE
BODY OF THE PACKAGE.

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_{BB0}	5.5	6.8	8.2	kohms
Emitter Breakdown Voltage ($I_{EB1} = 10\mu A$)	R_{BB0}	5.0		15	kohms
Peak Point Current ($V_{BB} = 10V$)	I_P			5	μA
Valley Point Current ($V_{BB} = 10V$)	I_V			15	μA
Emitter Reverse Current ($V_{EB1} = 5V$)	I_{EB10}	1	2		mA
Emitter Saturation Voltage ($I_E = 50mA, V_{BB} = 10V$)	I_{EB10}		0.1	10	nA
Modulated Interbase Current ($I_E = 50mA, V_{BB} = 10V$)	$V_{E(sat)}$		1.1	1.5	Volts
Peak Pulse Voltage (Note 4)	$I_{B2(mod)}$	1.0	4	10	mA
Diode Voltage Drop (Note 3)	V_{OUT}	3.5	4.5		Volts
Minimum Charge to Trigger ($V_{BB} = 10V$)	V_D	.30	.45	.60	Volts
Turn-on Time (See Figure 7)	Q_1		50		pC
Recovery Time (See Figure 7)	t_{on}			1	$\mu sec.$
Relaxation Oscillator Frequency Shift from 25°C Value (See Figure 1, $C = 0.1\mu F, R_{B2} = 950\Omega, V_{BB} = 12.5V$)	t_{rev}			10	$\mu sec.$
		0.2	0.6		%
		0.4	1.0		%

Notes:

- For capacitor discharge, resistor current limiting is required for capacitors greater than 5 μF and recommended for all cases (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 equations:

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

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 a minimum pulse amplitude for applications in SCR firing circuits and other types of firing circuits.

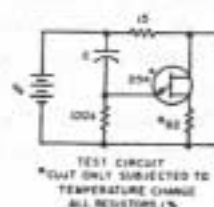


FIGURE 1

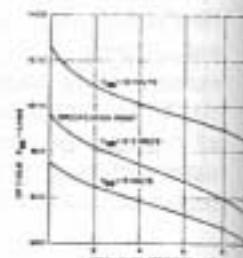


FIGURE 2

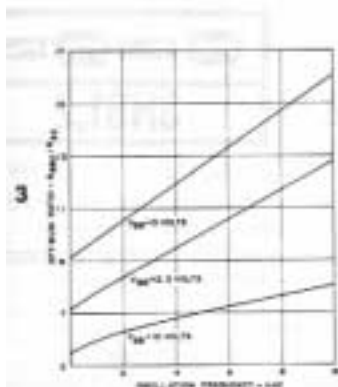


FIGURE 4

FIGURE 5

Complementary Unijunction Transistor symbol with nomenclature used for voltage and currents.

FIGURE 6
Static Emitter Characteristics curves showing important parameters and measurement points (exaggerated to show details).

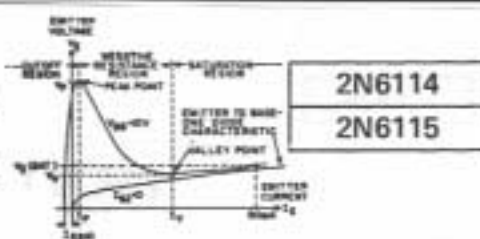
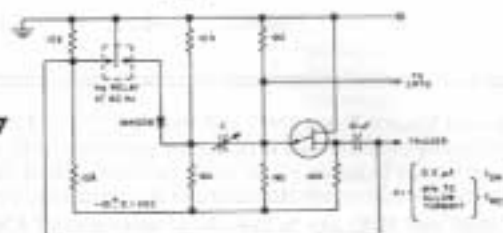


FIGURE 7



TYPICAL CHARACTERISTICS

