

IS654A  
IS655A



**3mm DIA. MATCHED INFRARED  
EMITTER DETECTOR PAIR  
PHOTOTRANSISTOR OUTPUT**

**DESCRIPTION**

The IS654A ( Gallium Arsenide Emitting Diode ) and the IS655A ( NPN Silicon Photo Transistor ) are a mechanically and spectrally matched emitter detector end looking pair.

**FEATURES**

- T-1 standard 3mm DIA.
- Detector has dark plastic package for visible light cut out
- LED has high output, Radiant Intensity :-  
 $I_E = 2\text{mW/sr min. at } I_F = 20\text{mA}$
- All electrical parameters are 100% tested

**APPLICATIONS**

- Floppy disk drives
- Infrared applied systems
- VCRs, Video camera
- Optoelectronic switches

**ABSOLUTE MAXIMUM RATINGS  
(25°C unless otherwise specified)**

Storage Temperature \_\_\_\_\_ -40°C to + 85°C  
 Operating Temperature \_\_\_\_\_ -25°C to + 85°C  
 Lead Soldering Temperature  
 (1/16 inch (1.6mm) from case for 10 secs) 260°C

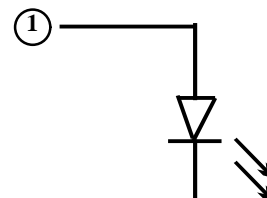
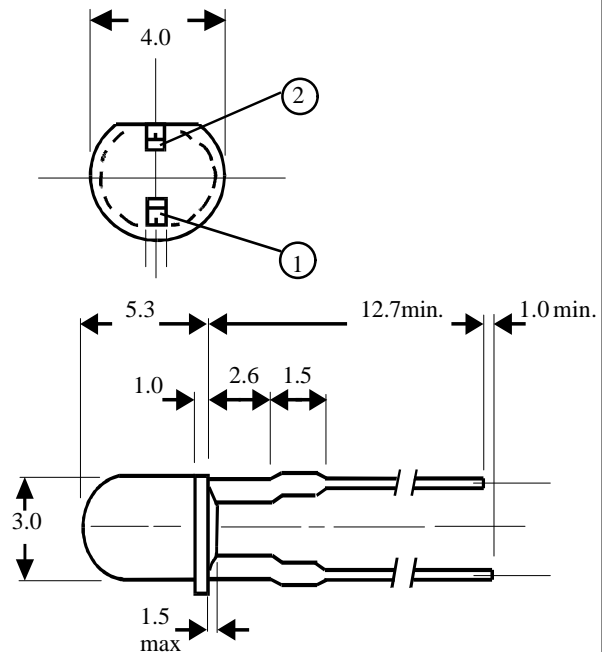
**INPUT DIODE**

Forward Current \_\_\_\_\_ 60mA  
 Reverse Voltage \_\_\_\_\_ 5V  
 Power Dissipation \_\_\_\_\_ 90mW

**OUTPUT TRANSISTOR**

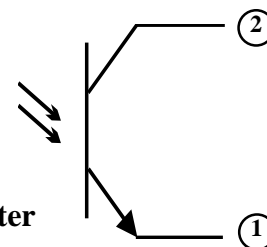
Collector-emitter Voltage  $BV_{CEO}$  \_\_\_\_\_ 30V  
 Emitter-collector Voltage  $BV_{ECO}$  \_\_\_\_\_ 5V  
 Collector Current  $I_C$  \_\_\_\_\_ 20mA  
 Power Dissipation \_\_\_\_\_ 50mW

Dimensions in mm



**IS654A**

- ① - Anode  
② - Cathode



**IS655A**

- ① - Emitter  
② - Collector

**ISOCOM COMPONENTS LTD**

Unit 25B, Park View Road West,  
 Park View Industrial Estate, Brenda Road  
 Hartlepool, Cleveland, TS25 1YD  
 Tel: (01429) 863609 Fax :(01429) 863581

**ISOCOM INC**

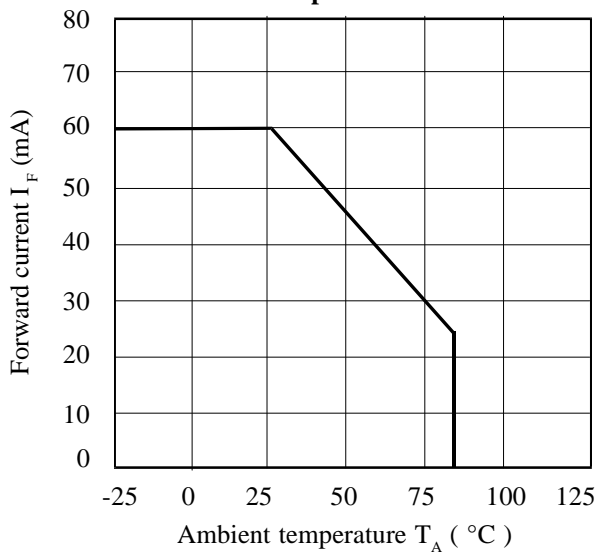
1024 S. Greenville Ave, Suite 240,  
 Allen, TX 75002 USA  
 Tel: (214) 495-0755 Fax: (214) 495-0901  
 e-mail info@isocom.com  
 http://www.isocom.com

**ELECTRICAL CHARACTERISTICS (  $T_A = 25^\circ\text{C}$  Unless otherwise noted )**

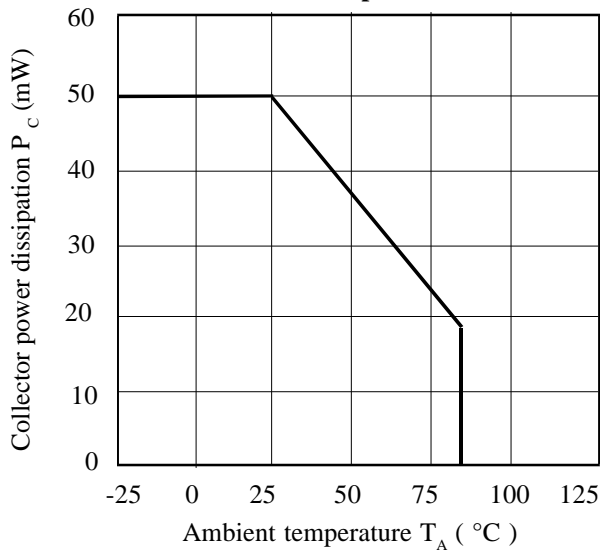
PARAMETER		MIN	TYP	MAX	UNITS	TEST CONDITION
IS654A Emitter	Forward Voltage ( $V_F$ )		1.2	1.6	V	$I_F = 20\text{mA}$
	Reverse Current ( $I_R$ )			100	$\mu\text{A}$	$V_R = 5\text{V}$
	Radiant Flux ( $I_E$ )	1.5			$\text{mW/sr}$	$I_F = 40\text{mA}$
	Peak Emission Wavelength		940		nm	$I_F = 40\text{mA}$
	Spectrum Radiation Bandwidth		50		nm	$I_F = 40\text{mA}$
	Beam Emission Angle		$\pm 20$		deg.	
IS655A Detector	Collector-emitter Breakdown ( $BV_{CEO}$ ) ( Note 1 )	30			V	$I_C = 1\text{mA}$ $E_e = 0\text{mW/cm}^2$
	Emitter-collector Breakdown ( $BV_{ECO}$ )	5			V	$I_E = 100\mu\text{A}$ $E_e = 0\text{mW/cm}^2$
	Collector-emitter Dark Current ( $I_{CEO}$ )			100	nA	$V_{CE} = 10\text{V}$ $E_e = 0\text{mW/cm}^2$
	On-State Collector Current $I_C$ (ON)	1			mA	$5\text{V } V_{CE}$ $E_e = 1\text{mW/cm}^2$
	Collector-emitter Saturation Voltage $V_{CE(SAT)}$			0.4	V	$I_C = 0.5\text{mA}$ $E_e = 0.5\text{mW/cm}^2$
	Rise Time $t_r$ Fall Time $t_f$		10 8	40 35	$\mu\text{s}$ $\mu\text{s}$	$V_{CC} = 20\text{V}, I_C = 1\text{mA},$ $R_L = 1\text{k}\Omega$
	Peak Sensitivity Wavelength Beam Acceptance Angle		940 $\pm 20$		nm deg.	$I_F = 40\text{mA}$

Note 1 Special Selections are available on request. Please consult the factory.

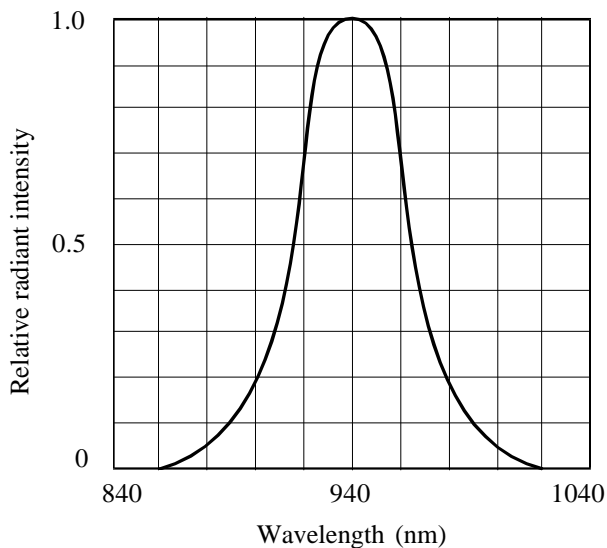
**Forward Current vs. Ambient Temperature**



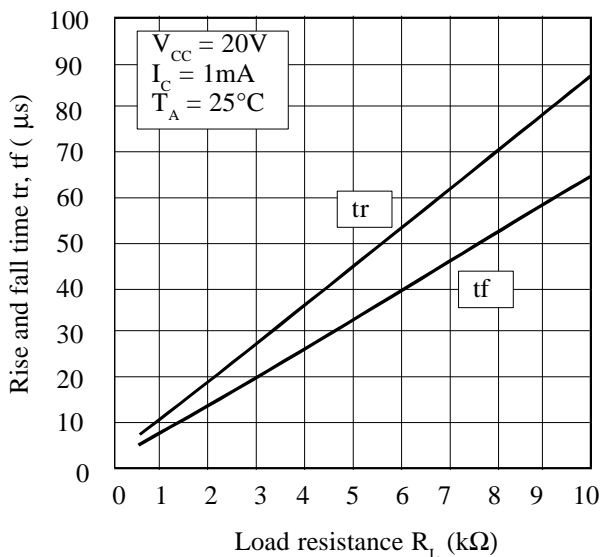
**Collector Power Dissipation vs. Ambient Temperature**



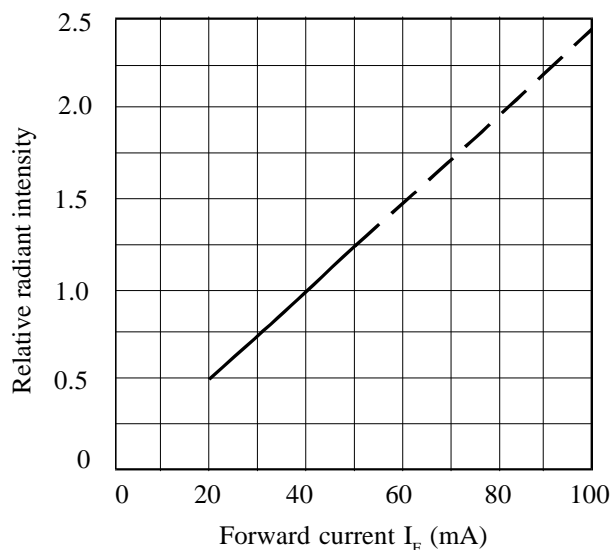
**Spectral Distribution**



**Rise and Fall Time vs. Load Resistance**



**Relative Radiant Intensity vs. Forward Current**



**Relative Collector Current vs. Irradiance**

