

IS725  
IS725X



**ISOCOM**  
COMPONENTS

**HIGH VOLTAGE DARLINGTON  
OUTPUT OPTICALLY COUPLED  
ISOLATOR**



**APPROVALS**

- UL recognised, File No. E91231  
Package Code " JJ "

**'X' SPECIFICATION APPROVALS**

- VDE 0884 in 3 available lead form :-  
- STD  
- G form  
- SMD approved to CECC 00802

**DESCRIPTION**

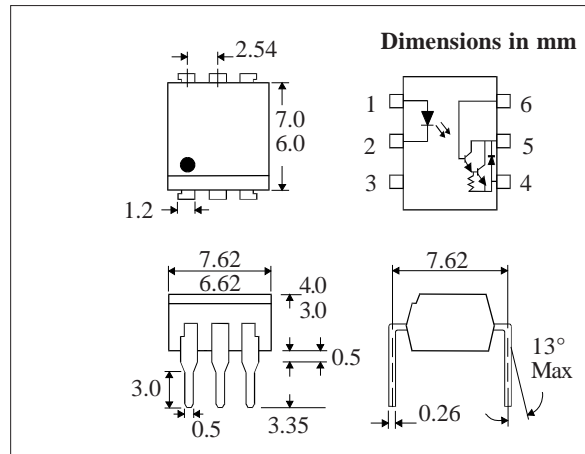
The IS725 is an optically coupled isolator consisting of infrared light emitting diode and a high voltage NPN silicon photo darlington which has an integral base-emitter resistor to optimise switching speed and elevated temperature characteristics in a standard 6pin dual in line plastic package.

**FEATURES**

- Options :-  
10mm lead spread - add G after part no.  
Surface mount - add SM after part no.  
Tape&reel - add SMT&R after part no.
- High Isolation Voltage (5.3kV<sub>RMS</sub>, 7.5kV<sub>PK</sub>)
- High Current Transfer Ratio ( 1000% min)
- High BV<sub>CEO</sub> (300V min.)
- Low collector dark current :-  
1µA max. at 200V V<sub>CE</sub>
- Low input current 1mA I<sub>F</sub>

**APPLICATIONS**

- Modems
- Copiers, facsimiles
- Numerical control machines
- Signal transmission between systems of different potentials and impedances



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

Storage Temperature \_\_\_\_\_ -40°C to +125°C  
Operating Temperature \_\_\_\_\_ -25°C to +100°C  
Lead Soldering Temperature  
(1/16 inch (1.6mm) from case for 10 secs) 260°C

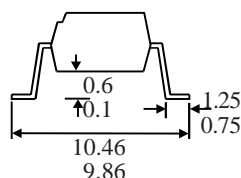
**INPUT DIODE**

Forward Current \_\_\_\_\_ 50mA  
Reverse Voltage \_\_\_\_\_ 6V  
Power Dissipation \_\_\_\_\_ 70mW

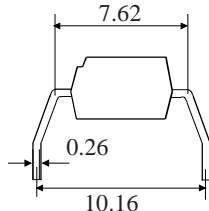
**OUTPUT TRANSISTOR**

Collector-emitter Voltage BV<sub>CEO</sub> \_\_\_\_\_ 300V  
Collector-base Voltage BV<sub>CBO</sub> \_\_\_\_\_ 300V  
Emitter-base Voltage BV<sub>EBO</sub> \_\_\_\_\_ 6V  
Collector Current I<sub>C</sub> \_\_\_\_\_ 150mA  
Power Dissipation \_\_\_\_\_ 300mW

**OPTION SM  
SURFACE MOUNT**



**OPTION G**



**POWER DISSIPATION**

Total Power Dissipation \_\_\_\_\_ 350mW

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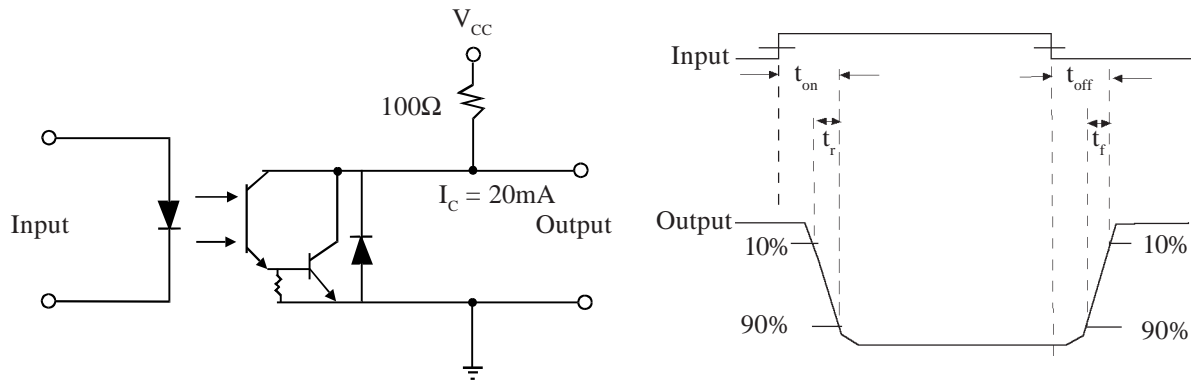
**ELECTRICAL CHARACTERISTICS (  $T_A = 25^\circ\text{C}$  Unless otherwise noted )**

PARAMETER		MIN	TYP	MAX	UNITS	TEST CONDITION
Input	Forward Voltage ( $V_F$ )		1.2	1.4	V	$I_F = 10\text{mA}$
	Reverse Current ( $I_R$ )			10	$\mu\text{A}$	$V_R = 4\text{V}$
Output	Collector-emitter Breakdown ( $BV_{CEO}$ )	300			V	$I_C = 1\text{mA}$
	Collector-base Breakdown ( $BV_{CBO}$ )	300			V	$I_C = 0.1\text{mA}$
	Emitter-base Breakdown ( $BV_{EBO}$ )	6			V	$I_E = 0.1\text{mA}$
	Collector-emitter Dark Current ( $I_{CEO}$ )			1	$\mu\text{A}$	$V_{CE} = 200\text{V}$
Coupled	Current Transfer Ratio (CTR)	1000	4000		%	$1\text{mA} I_F, 2\text{V} V_{CE}$
	Collector-emitter Saturation Voltage $V_{CE(SAT)}$			1.2	V	$20\text{mA} I_F, 100\text{mA} I_C$
	Input to Output Isolation Voltage $V_{ISO}$	5300			$V_{RMS}$	See note 1
		7500			$V_{PK}$	See note 1
	Input-output Isolation Resistance $R_{ISO}$	$5 \times 10^{10}$			$\Omega$	$V_{IO} = 500\text{V}$ (note 1)
	Input-output Capacitance $C_f$			1	pF	$V = 0, f = 1\text{MHz}$
	Cut-off frequency $f_c$	1			kHz	$V_{CC} = 2\text{V}, I_C = 20\text{mA}, R_L = 100\Omega, -3\text{dB}$
Output Rise Time $t_r$		100	300	$\mu\text{s}$	$V_{CE} = 2\text{V}, I_C = 20\text{mA}, R_L = 100\Omega$	
Output Fall Time $t_f$		20	100	$\mu\text{s}$		

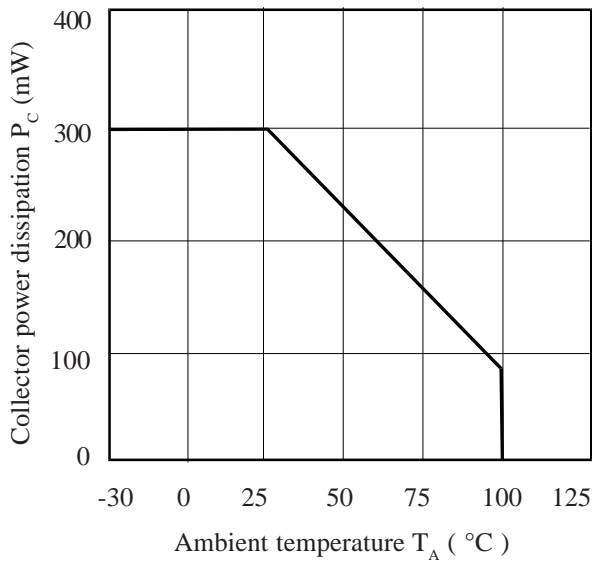
Note 1 Measured with input leads shorted together and output leads shorted together.

Note 2 Special Selections are available on request. Please consult the factory.

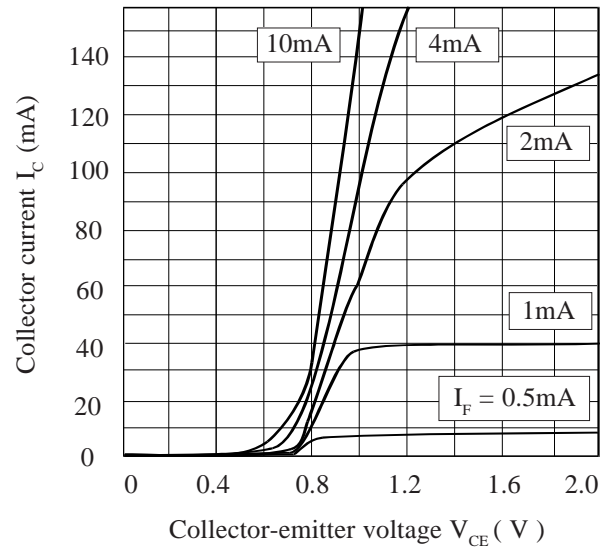
**FIGURE 1**



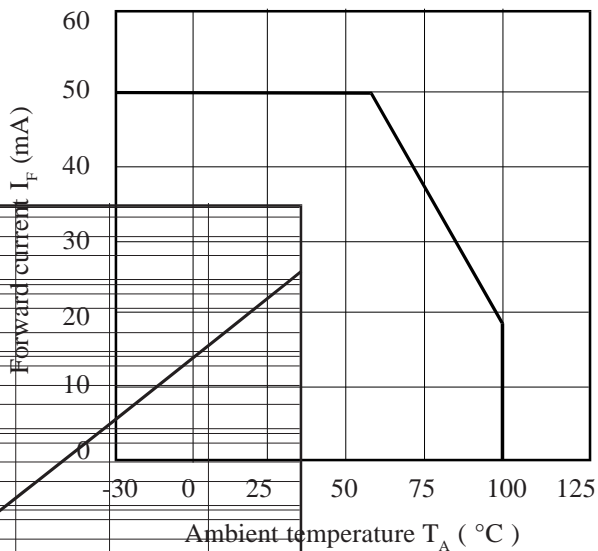
**Collector Power Dissipation vs. Ambient Temperature**



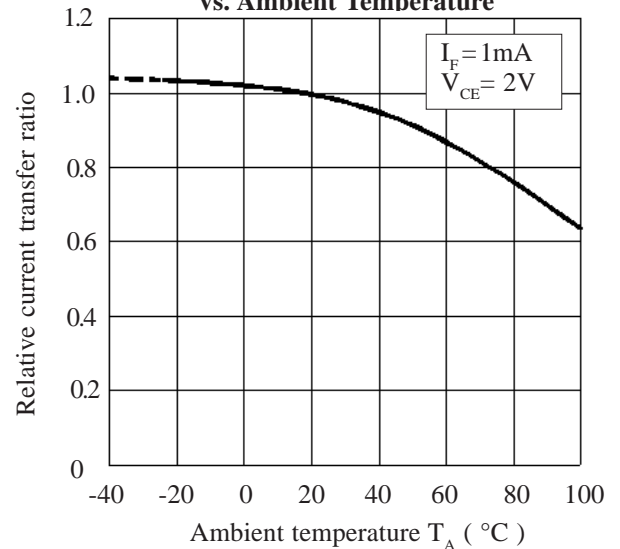
**Collector Current vs. Collector-emitter Voltage**



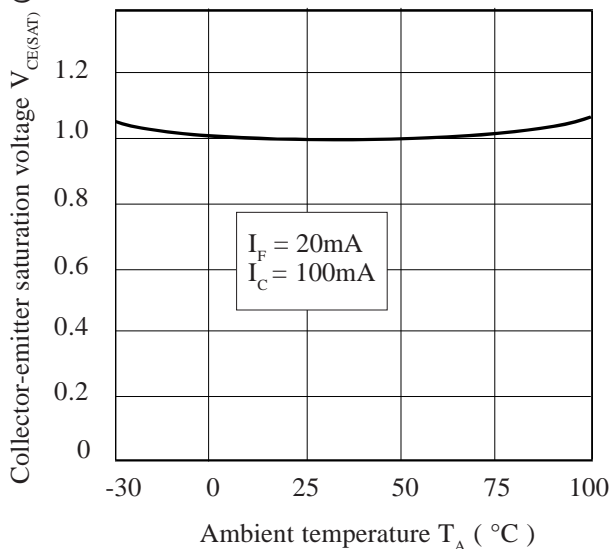
**Forward Current vs. Ambient Temperature**



**Relative Current Transfer Ratio vs. Ambient Temperature**



**Collector-emitter Saturation Voltage vs. Ambient Temperature**



**Collector Dark Current vs. Ambient Temperature**

