IS725

HIGH VOLTAGE DARLINGTON OUTPUT OPTICALLY COUPLED ISOLATOR

APPROVALS

- UL recognised, File No. E91231

DESCRIPTION

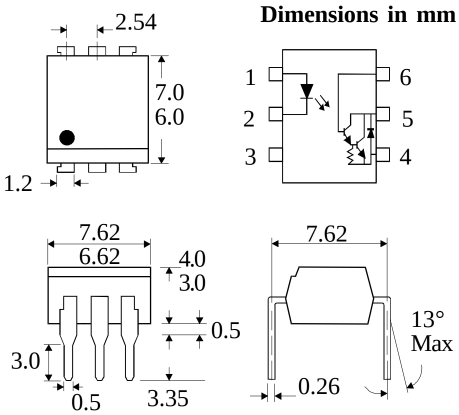
The IS725 is an optically coupled isolator consisting of infrared light emitting diode and a high voltage NPN silicon photo darlington which has an integral base-emitter resistor to optimise switching speed and elevated temperature characteristics in a standard 6pin dual in line plastic package.

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$_{RMS}$,7.5kV$_{PK}$)
- High Current Transfer Ratio (1000% min)
- High BV$_{CEO}$ (300V min.)
- Low collector dark current :-
  1μA max. at 200V V$_{CE}$
- Low input current 1mA I$_F$

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

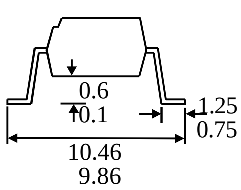
OUTPUT TRANSISTOR

Collector-emitter Voltage BV$_{CEO}$	300V
Collector-base Voltage BV$_{CBO}$	300V
Emitter-baseVoltage BV$_{ECO}$	6V
Collector Current I$_C$	150mA
Power Dissipation	300mW

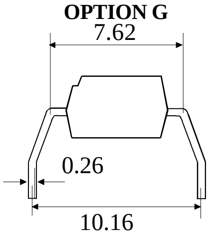
POWER DISSIPATION

Total Power Dissipation	350mW

OPTION SM
SURFACE MOUNT



OPTION G



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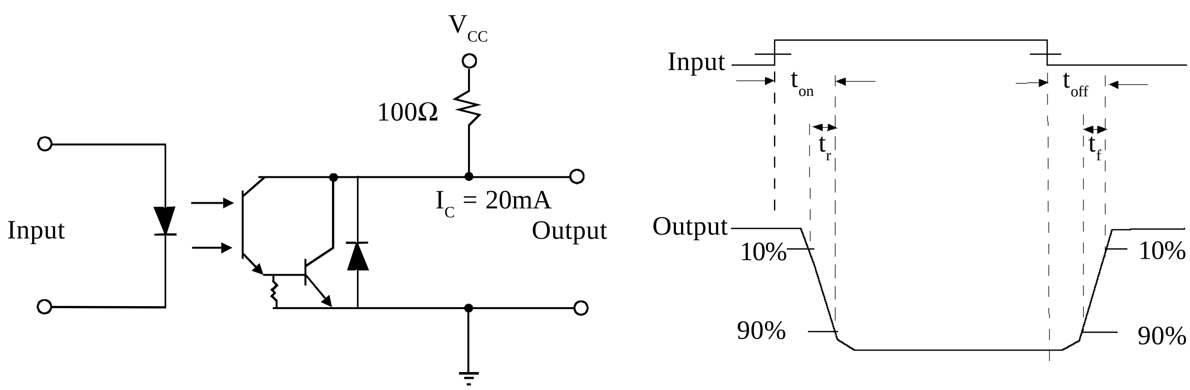
ELECTRICAL CHARACTERISTICS (T_A= 25°C Unless otherwise noted)

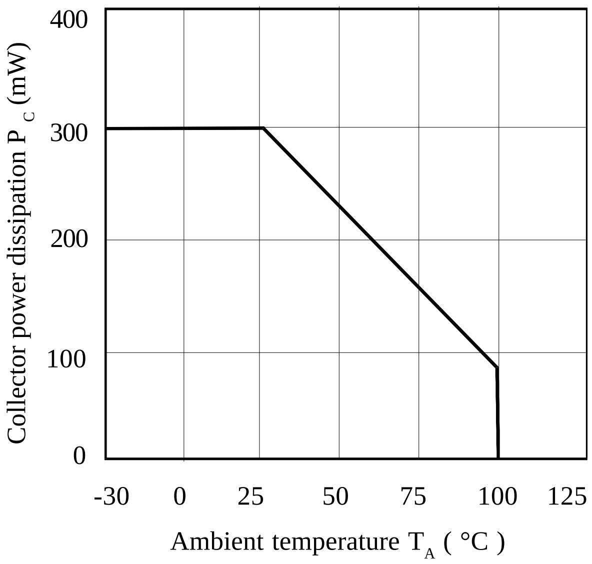
	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITION
Input	Forward Voltage (V_F)		1.2	1.4	V	I_F = 10mA
	Reverse Voltage (V_R)	6			V	I_R = 10µA
	Reverse Current (I_R)			10	µA	V_R = 6V
Output	Collector-emitter Breakdown (BV_{CEO})	300			V	I_C = 1mA
	Collector-base Breakdown (BV_{CBO})	300			V	I_C = 0.1mA
	Emitter-base Breakdown (BV_{EBO})	6			V	I_E = 0.1mA
	Collector-emitter Dark Current (I_{CEO})			1	µA	V_{CE} = 200V
Coupled	Current Transfer Ratio (CTR)	1000	4000		%	1mA I_F, 2V V_{CE}
	Collector-emitter Saturation Voltage $V_{CE(SAT)}$			1.2	V	20mA I_F, 100mA 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}	$5x10^{10}$			Ω	V_{IO}= 500V (note 1)
	Input-output Capacitance Cf			1	pF	V = 0, f =1MHz
	Cut-off frequency fc	1			kHz	V_{CE} = 2V, I_C= 20mA, R_L = 100Ω, R_{BE}= open
	Output Rise Time tr			300	µs	V_{CE} = 2V, I_C= 20mA,
	Output Fall Time tf			100	µs	R_L = 100Ω, R_{BE}= open

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.

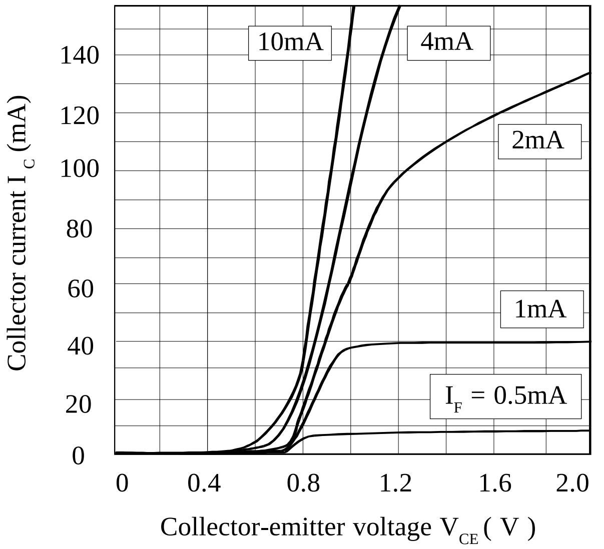
FIGURE 1



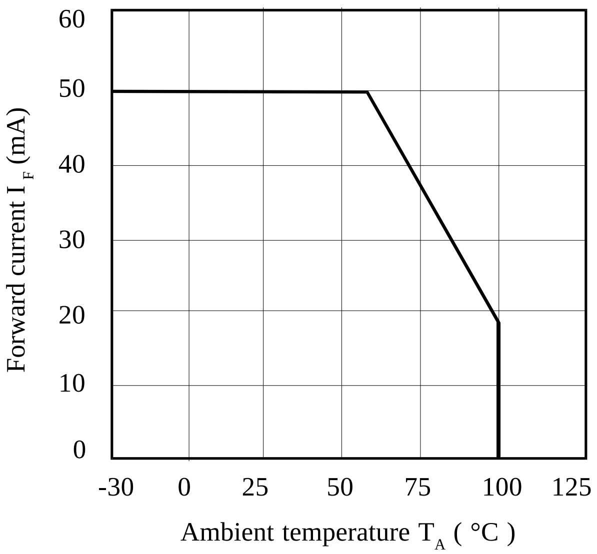
Collector Power Dissipation vs. Ambient Temperature



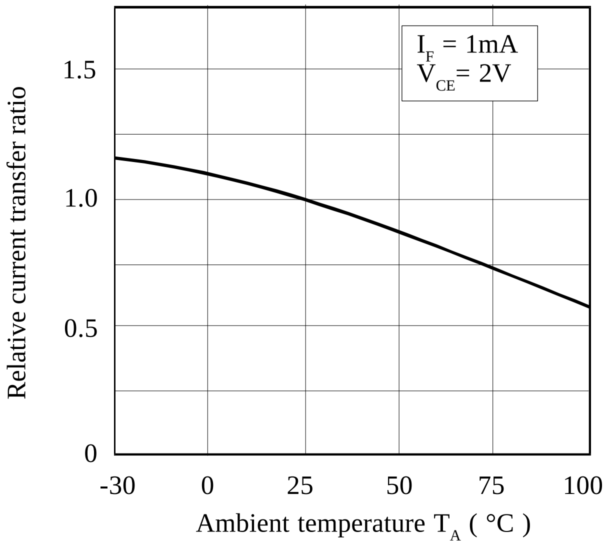
Collector Current vs. Collector-emitter Voltage



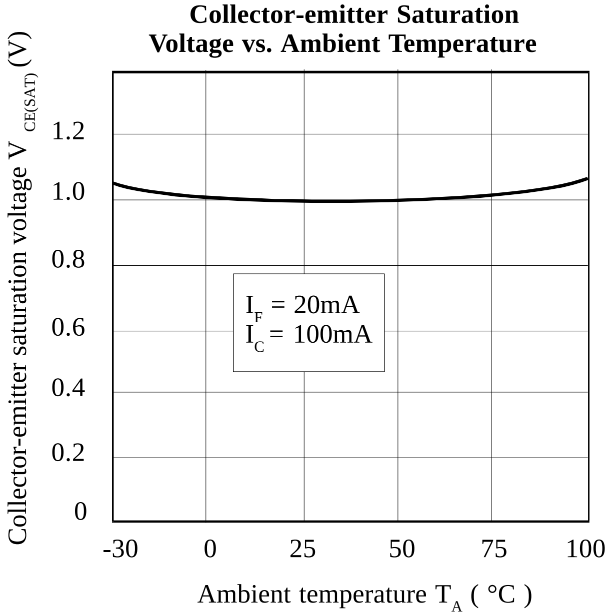
Forward Current vs. Ambient Temperature



Relative Current Transfer Ratio vs. Ambient Temperature



Collector-emitter Saturation Voltage vs. Ambient Temperature



Collector Dark Current vs. Ambient Temperature