



HIGH VOLTAGE DARLINGTON OUTPUT OPTICALLY COUPLED ISOLATOR

DESCRIPTION

The IS7000 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 space efficient, end-stackable 4 pin dual in line plastic package.

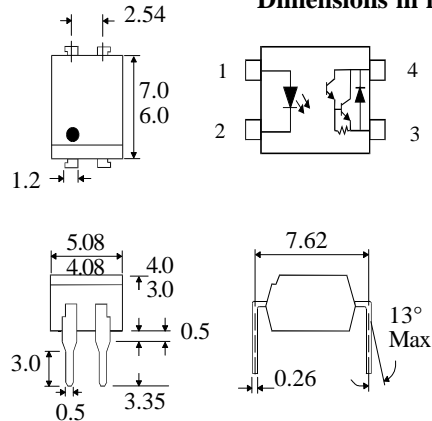
FEATURES

- 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.)

APPLICATIONS

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

Dimensions in mm



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

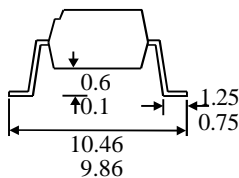
OUTPUT TRANSISTOR

Collector-emitter Voltage BV_{CEO} _____ 300V
 Emitter-collector Voltage BV_{ECO} _____ 0.1V
 Collector Current I_C _____ 150mA
 Power Dissipation _____ 150mW

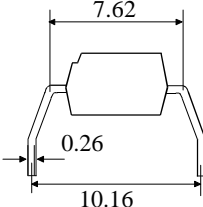
POWER DISSIPATION

Total Power Dissipation _____ 200mW

OPTION SM SURFACE MOUNT



OPTION G



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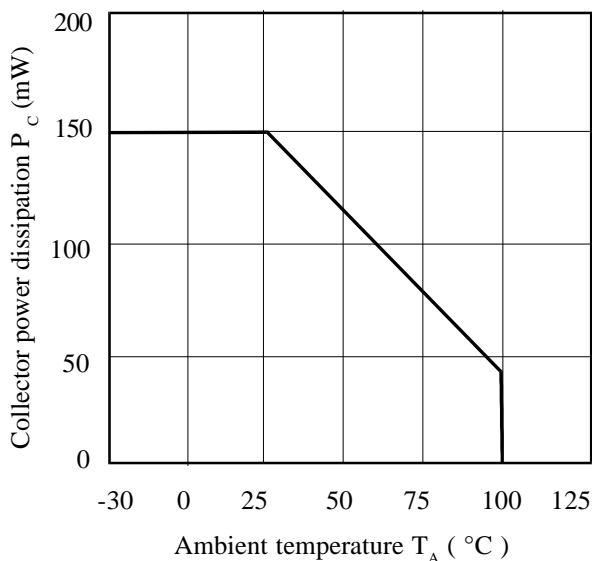
ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ Unless otherwise noted)

PARAMETER		MIN	TYP	MAX	UNITS	TEST CONDITION
Input	Forward Voltage (V_F)		1.2	1.4	V	$I_F = 10\text{mA}$
	Reverse Voltage (V_R)	4			V	$I_R = 10\mu\text{A}$
	Reverse Current (I_R)			10	μA	$V_R = 4\text{V}$
Output	Collector-emitter Breakdown (BV_{CEO})	300			V	$I_C = 0.1\text{mA}$ (note 2)
	Emitter-collector Breakdown (BV_{ECO})	0.1			V	$I_E = 0.1\text{mA}$
	Collector-emitter Dark Current (I_{CEO})			200	nA	$V_{CE} = 200\text{V}$
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 7500			V_{RMS} V_{PK}	See note 1 See note 1
	Input-output Isolation Resistance R_{ISO}	5×10^{10}			Ω	$V_{IO} = 500\text{V}$ (note 1)
	Output Rise Time t_r		40		μs	$V_{CC} = 10\text{V}, I_C = 10\text{mA},$ $R_L = 100\Omega$
	Output Fall Time t_f		15		μs	
	Turn-on Time t_{on}		50		μs	
Turn-off Time t_{off}		15		μs		

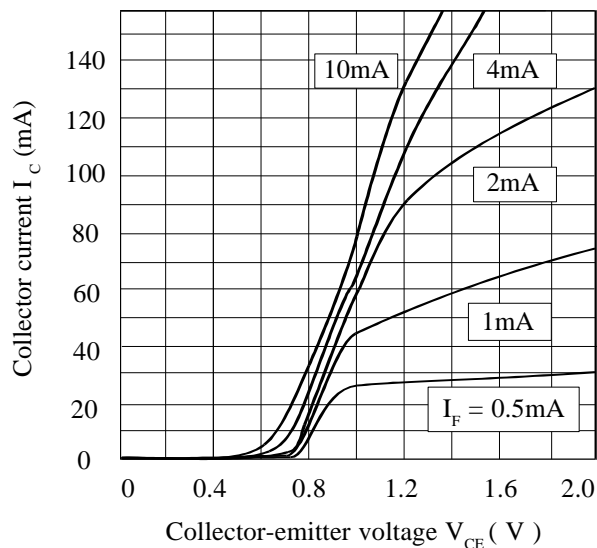
Note 1 Measured with input leads shorted together and output leads shorted together.

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

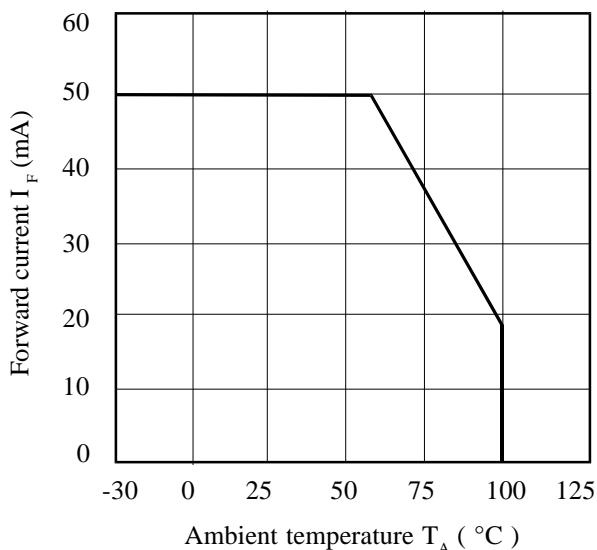
Collector Power Dissipation vs. Ambient Temperature



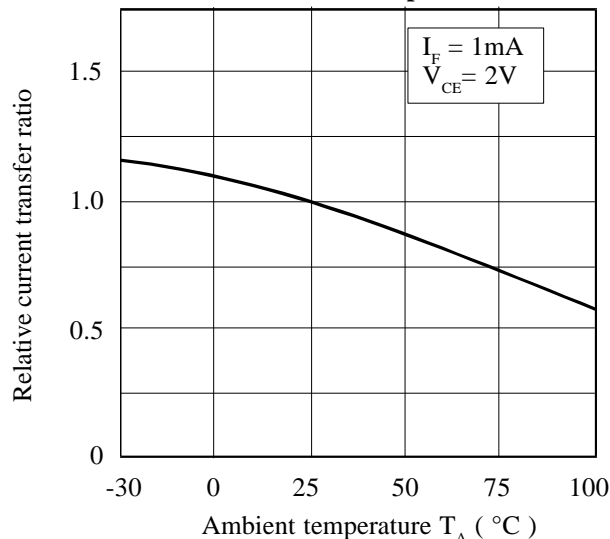
Collector Current vs. Collector-emitter Voltage



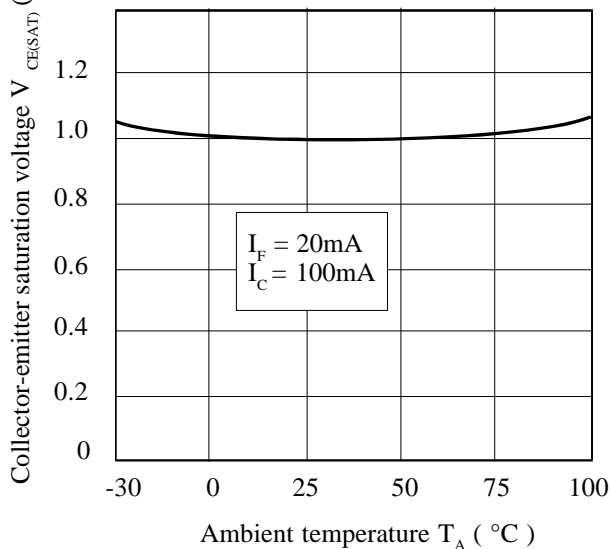
Forward Current vs. Ambient Temperature



Relative Current Transfer Ratio vs. Ambient Temperature



Collector-emitter Saturation Voltage vs. Ambient Temperature



Collector Dark Current vs. Ambient Temperature

