



**HIGH VOLTAGE DARLINGTON
OUTPUT OPTICALLY COUPLED
ISOLATOR**

APPROVALS

- UL recognised, File No. E91231

DESCRIPTION

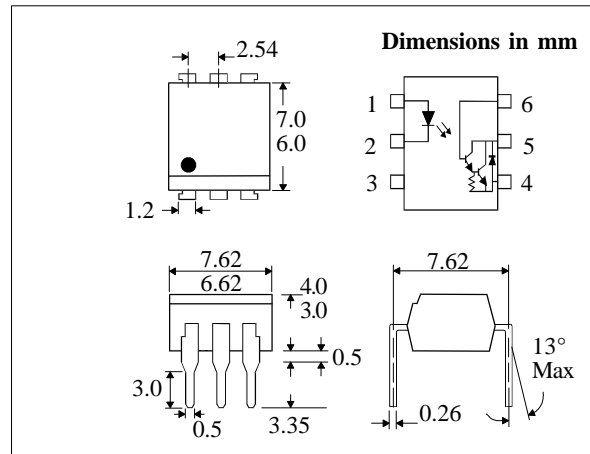
The IS66_ series are optically coupled isolators consisting of infrared light emitting diode and a high voltage NPN silicon photo darlington which has an integral base-emitter resistor to optimise switching speed and elevated temperature characteristics in a standard 6pin dual in line plastic package.

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} (400V min. - IS662)
(300V min. - IS661)
(200V min. - IS660)
- Low collector dark current :-
1µA max. at 200V V_{CE} - IS661, IS662
1µA max. at 100V V_{CE} - IS660
- 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

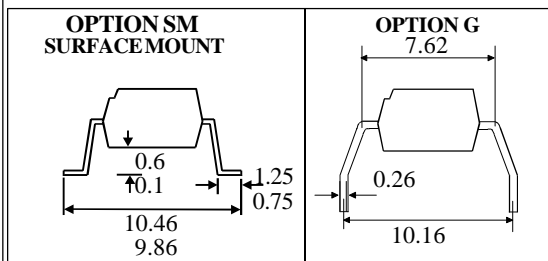
Forward Current	50mA
Reverse Voltage	6V
Power Dissipation	70mW

OUTPUT TRANSISTOR

Collector-emitter Voltage BV _{CEO}	200, 300, 400V
Collector-base Voltage BV _{CBO}	200, 300, 400V
Emitter-base Voltage BV _{ECO}	6V
Collector Current I _C	150mA
Power Dissipation	300mW

POWER DISSIPATION

Total Power Dissipation	350mW
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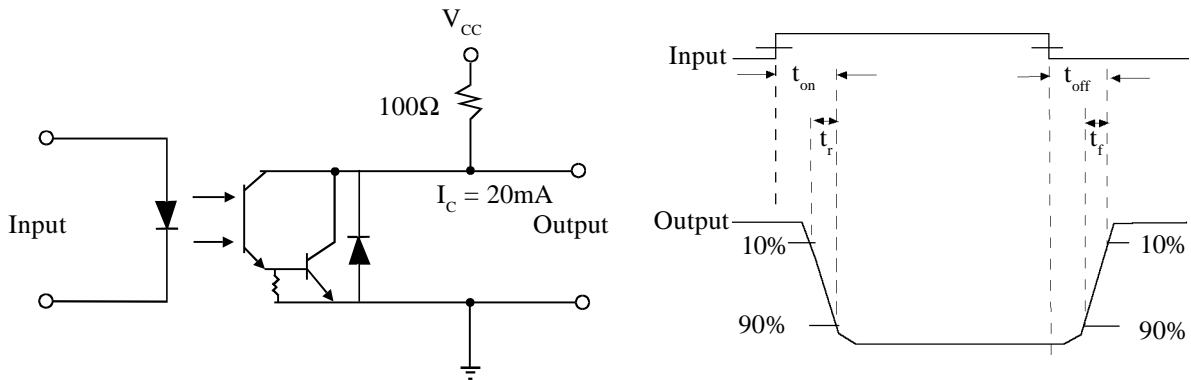
ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ Unless otherwise noted)

PARAMETER		MIN	TYP	MAX	UNITS	TEST CONDITION
Input	Forward Voltage (V_F)		1.2	1.4	V	$I_F = 10\text{mA}$
	Reverse Voltage (V_R)	6			V	$I_R = 10\mu\text{A}$
	Reverse Current (I_R)			10	μA	$V_R = 6\text{V}$
Output	Collector-emitter Breakdown (BV_{CEO})				V	$I_C = 1\text{mA}$
	IS660	200			V	$I_C = 1\text{mA}$
	IS661	300			V	$I_C = 1\text{mA}$
	IS662	400			V	$I_C = 1\text{mA}$
	Collector-base Breakdown (BV_{CBO})				V	$I_C = 0.1\text{mA}$
	IS660	200			V	$I_C = 0.1\text{mA}$
	IS661	300			V	$I_C = 0.1\text{mA}$
	IS662	400			V	$I_C = 0.1\text{mA}$
	Emitter-base Breakdown (BV_{EBO})	6			V	$I_E = 0.1\text{mA}$
Coupled	Collector-emitter Dark Current (I_{CEO})			1	μA	$V_{CE} = 200\text{V}$
	IS661, IS662			1	μA	$V_{CE} = 100\text{V}$
	IS660					
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}	5×10^{10}			Ω	$V_{IO} = 500\text{V}$ (note 1)
	Input-output Capacitance C_f			1	pF	$V = 0, f = 1\text{MHz}$
	Cut-off frequency f_c	1			kHz	$V_{CE} = 2\text{V}, I_C = 20\text{mA}, R_L = 100\Omega, R_{BE} = \text{open}$
	Output Rise Time t_r			300	μs	$V_{CE} = 2\text{V}, I_C = 20\text{mA}, R_L = 100\Omega, R_{BE} = \text{open}$
Output Fall Time t_f			100	μs		

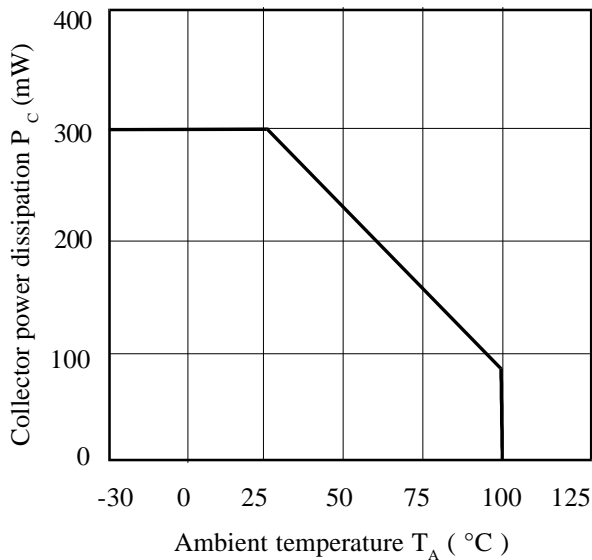
Note 1 Measured with input leads shorted together and output leads shorted together.

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

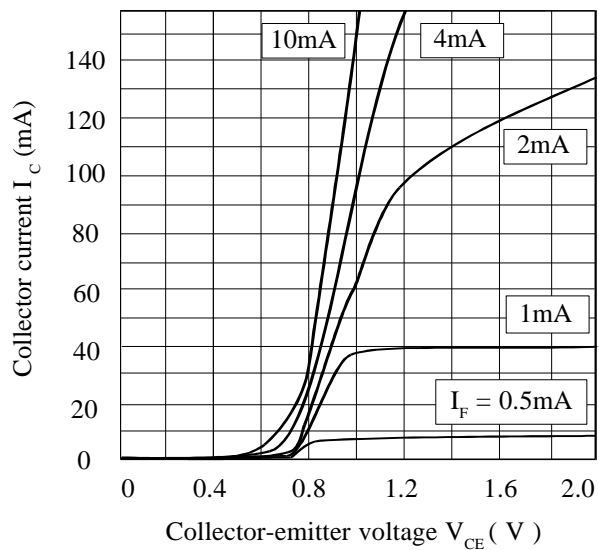
FIGURE 1



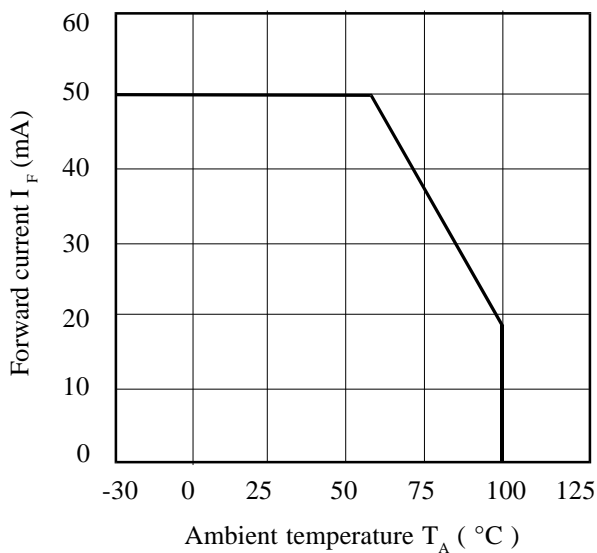
Collector Power Dissipation vs. Ambient Temperature



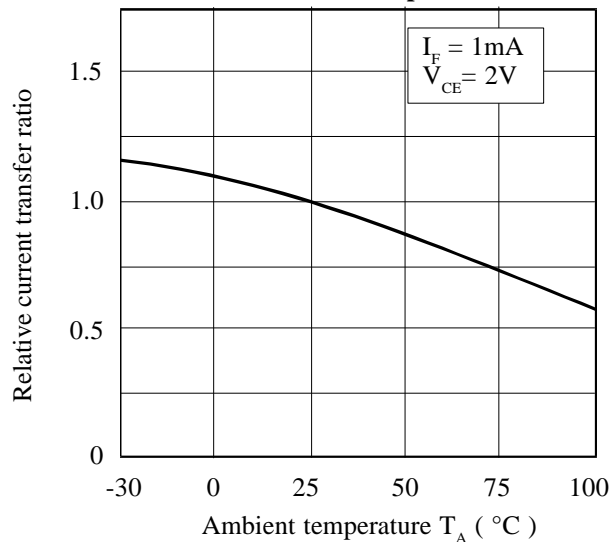
Collector Current vs. Collector-emitter Voltage



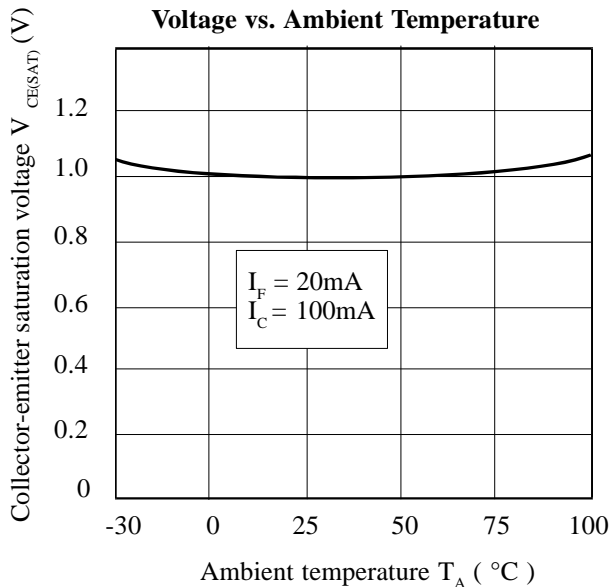
Forward Current vs. Ambient Temperature



Relative Current Transfer Ratio vs. Ambient Temperature



Collector-emitter Saturation Voltage vs. Ambient Temperature



Collector Dark Current vs. Ambient Temperature

