

TIL111X, TIL114X, TIL116X, TIL117X
TIL111, TIL114, TIL116, TIL117



ISOCOM

COMPONENTS



OPTICALLY COUPLED ISOLATOR PHOTOTRANSISTOR OUTPUT

APPROVALS

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

'X' SPECIFICATION APPROVALS

- VDE 0884 in 3 available lead form :-
- STD
- G form
- SMD approved to CECC 00802
- TIL111 Certified to EN60950 by :-
Nemko - Certificate No. P01102464

DESCRIPTION

The TIL111, TIL114, TIL116, TIL117 series of optically coupled isolators consist of infrared light emitting diode and NPN silicon photo transistor in a standard 6 pin dual in line plastic package.

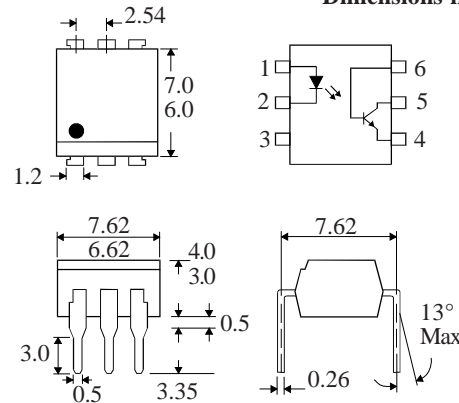
FEATURES

- 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})

APPLICATIONS

- DC motor controllers
- Industrial systems controllers
- 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	60mA
Reverse Voltage	6V
Power Dissipation	105mW

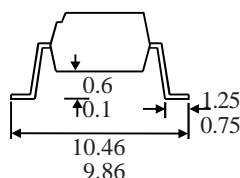
OUTPUT TRANSISTOR

Collector-emitter Voltage V_{CEO}	30V
Collector-base Voltage V_{CBO}	70V
Emitter-collector Voltage V_{ECO}	6V
Collector Current	50mA
Power Dissipation	160mW

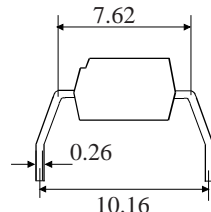
POWER DISSIPATION

Total Power Dissipation	200mW
(derate linearly 2.67mW/°C above 25°C)	

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	$I_F = 16\text{mA}$
	Reverse Current (I_R)			10	μA	$V_R = 6\text{V}$
Output	Collector-emitter Breakdown (BV_{CEO})	30			V	$I_C = 1\text{mA}$ (note 2)
	Collector-base Breakdown (BV_{CBO})	70			V	$I_C = 100\mu\text{A}$
	Emitter-collector Breakdown (BV_{ECO})	6			V	$I_E = 100\mu\text{A}$
	Collector-emitter Dark Current (I_{CEO})			50	nA	$V_{CE} = 10\text{V}$
Coupled	On-state Collector Current ($I_{C(on)}$)					
	TIL111, TIL114	20			%	$16\text{mA } I_F, 0.4\text{V } V_{CE}$
	TIL116	20			%	$10\text{mA } I_F, 10\text{V } V_{CE}$
	TIL117	50			%	$10\text{mA } I_F, 10\text{V } V_{CE}$
	Collector-emitter Saturation Voltage $V_{CE(SAT)}$					
	TIL111, TIL114			0.4	V	$16\text{mA } I_F, 2\text{mA } I_C$
	TIL116			0.4	V	$15\text{mA } I_F, 2.2\text{mA } I_C$
	TIL117			0.4	V	$10\text{mA } I_F, 0.5\text{mA } I_C$
	Input to Output Isolation Voltage V_{ISO}	5300				See note 1
		7500			V_{RMS}	See note 1
Input-output Isolation Resistance R_{ISO}	5×10^{10}			V_{PK}	$V_{IO} = 500\text{V}$ (note 1)	
Output Rise Time, t_r		2	7	μs	$V_{CC} = 5\text{V}, I_F = 10\text{mA}$	
Output Fall Time, t_f		2	8	μs	$R_L = 75\Omega$ fig 1	

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.

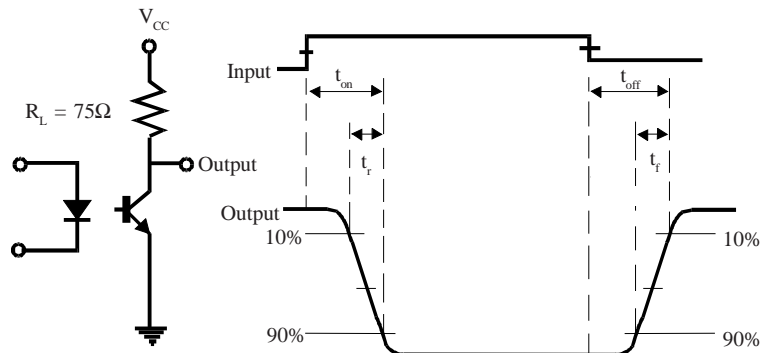
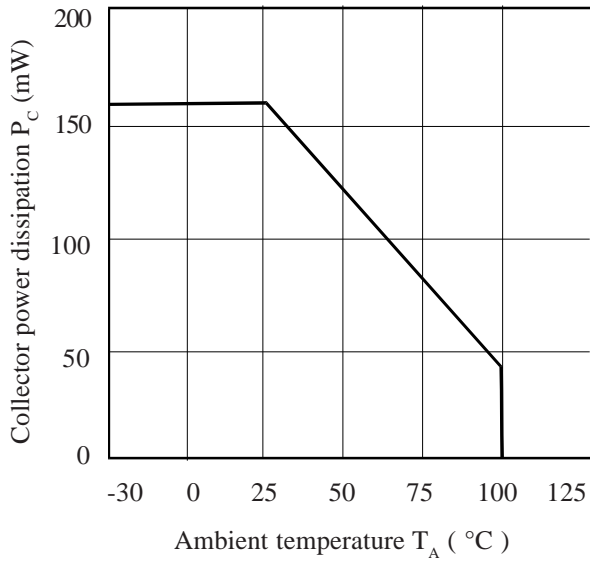
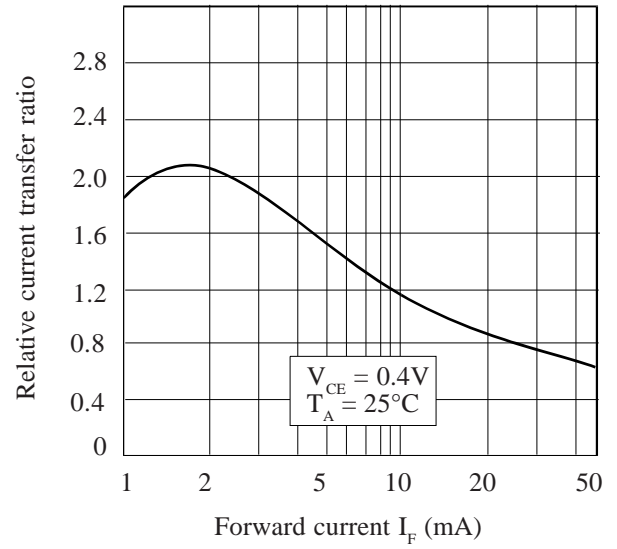


FIG 1

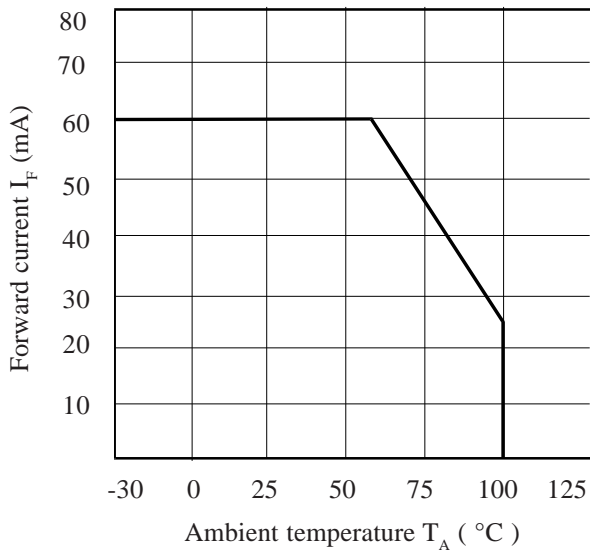
Collector Power Dissipation vs. Ambient Temperature



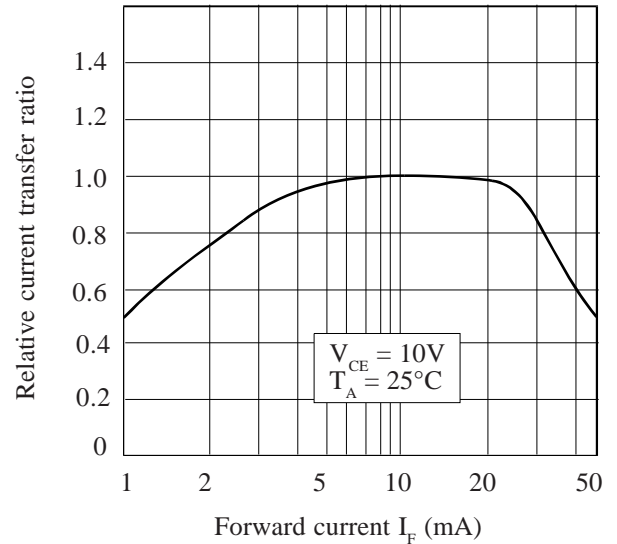
Relative Current Transfer Ratio vs. Forward Current (TIL111, TIL114)



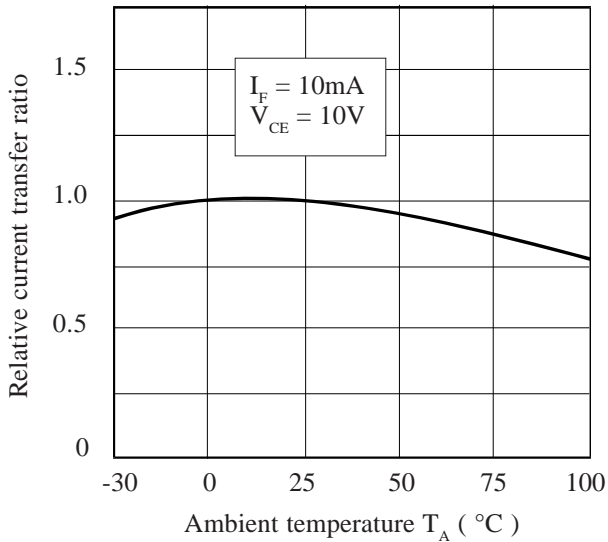
Forward Current vs. Ambient Temperature



Relative Current Transfer Ratio vs. Forward Current (TIL116, TIL117)



Relative Current Transfer Ratio vs. Ambient Temperature (TIL116, TIL117)



Relative Current Transfer Ratio vs. Ambient Temperature (TIL111, TIL114)

