TELEFUNKEN electronic
Creative Technologies

CNY 71

T-41-83

Optically Coupled Isolator

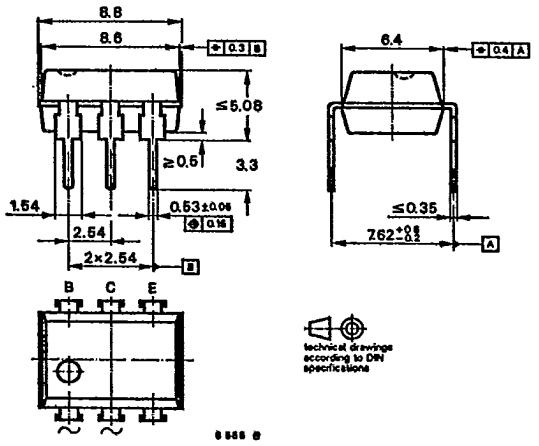
Construction: Emitter: Two antiparallel GaAs Infrared Emitting Diodes
Detector: Silicon NPN Epitaxial Planar Phototransistor

Applications: Galvanically separated circuits, non-interacting switches, mains controlled switch with series resistance

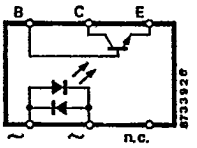
Features:

- AC input
- High isolation voltage
- Low coupling capacity
- High isolation resistance
- Built-in polarity protected input

Dimensions in mm



Pin connections



Plastic case
DIP 6
Weight ca. 0.7 g

Absolute maximum ratings

Emitter

Forward current	I_{FRMS}	60	mA
Forward surge current $t_p \leq 10\ \mu s$	$\pm I_{FSM}$	3	A
Power dissipation $T_{amb} \leq 25\ °C$	P_V	100	mW
Junction temperature	T_j	125	°C

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Detector					
Collector base voltage	V_{CBO}		50		V
Collector emitter voltage	V_{CEO}		32		V
Emitter collector voltage	V_{ECO}		7		V
Collector current	I_C		100		mA
Collector peak current					
$\frac{t_p}{T} = 0.5$, $t_p \leq 10$ ms	I_{CM}		200		mA
Power dissipation					
$T_{amb} \leq 25$ °C	P_V		150		mW
Junction temperature	T_j		125		°C
Coupled device					
DC isolation test voltage	V_{is} [1]		5.3		kV
Total power dissipation					
$T_{amb} \leq 25$ °C	P_{tot}		250		mW
Ambient temperature range	T_{amb}		−55...+100		°C
Storage temperature range	T_{stg}		−55...+125		°C
Soldering temperature					
2 mm from case, $t \leq 10$ s	T_{sd}		260		°C
Electrical characteristics		**Min.**	**Typ.**	**Max.**	
$T_{amb} = 25$ °C					
Emitter					
Forward voltage					
$I_F = 10$ mA	V_F		1.25	1.6	V
Junction capacitance					
$V_R = 0$, $f = 1$ MHz	C_j		50		pF
Detector					
Collector base breakdown voltage					
$I_C = 100$ µA	$V_{(BR)CBO}$	50			V
Collector emitter breakdown voltage					
$I_C = 1$ mA	$V_{(BR)CEO}$	32			V
Emitter collector breakdown voltage					
$I_E = 100$ µA	$V_{(BR)ECO}$	7			V
Collector dark current					
$V_{CE} = 10$ V, $I_F = 0$	I_{CEO}			100	nA
Coupled Device					
DC peak isolation test voltage					
$t = 2$ s	V_{is} [1]	5.3			kV
Isolation resistance					
$V_{IO} = 1$ kV, 40 % relative humidity	R_{is} [1]		10^{12}		Ω
Collector current					
$V_{CE} = 10$ V, $I_F = \pm$ 10 mA	I_C	2			mA
Current transfer ratio					
$V_{CE} = 10$ V, $I_F \pm = 10$ mA	CTR	20			%

[1] related to standard climate 23/50 DIN 50014

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		Min.	Typ.	Max.	
CTR symmetry	$\frac{I_C/+I_F}{I_C/-I_F}$	0.33		3	
Collector emitter saturation voltage					
$I_F = \pm 10$ mA, $I_C = 1$ mA	V_{CEsat}			0.3	V
Cut-off frequency					
$I_F = 10$ mA, $V_{CE} = 5$ V, $R_L = 100\ \Omega$	f_c		110		kHz
Coupling capacitance					
$f = 1$ MHz	C_k		0.3		pF
Switching charactristcs					
$V_S = 10$ V, $I_C = 2$ mA, $R_L = 100\ \Omega$, see Fig. 1					
Turn-on time	t_{on}		5		µs
Turn-off time	t_{off}		3		µs
$V_S = 5$ V, $I_F = 10$ mA, $R_L = 1$ kΩ, see Fig. 2					
Turn-on time	t_{on}		25		µs
Turn-off time	t_{off}		42.5		µs

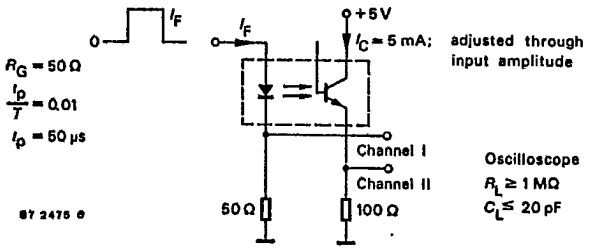

Fig. 1 Test circuit, non saturated operation

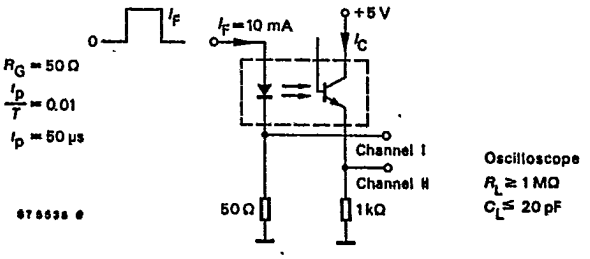

Fig. 2 Test circuit, saturated operation

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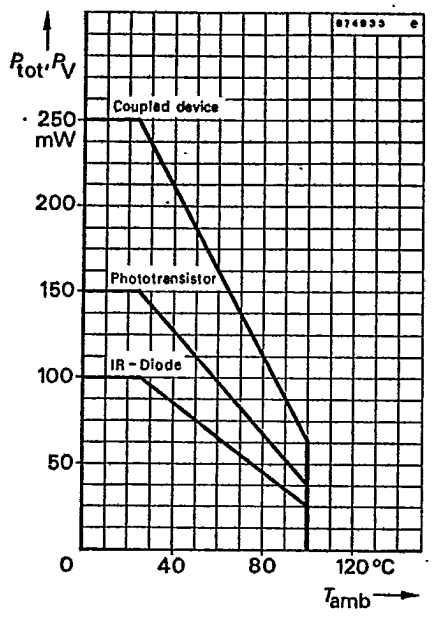

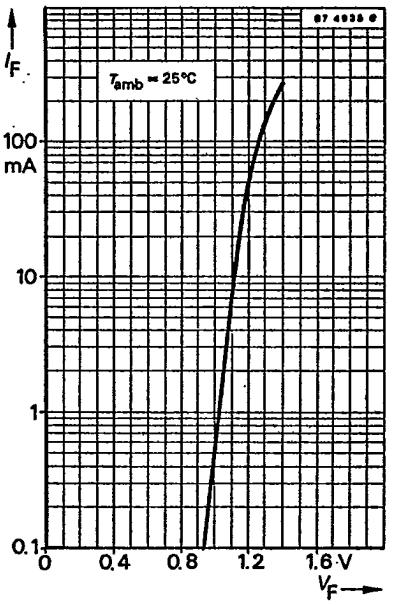

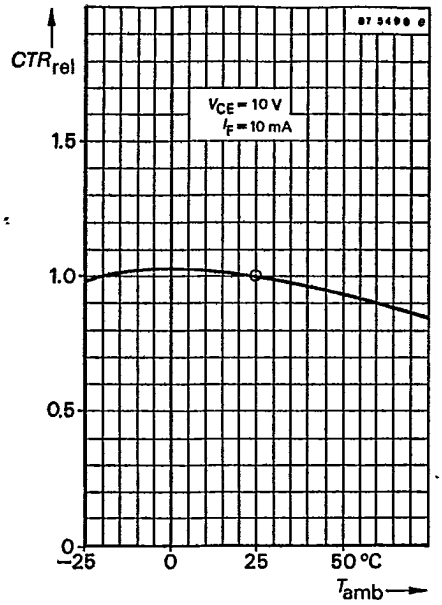

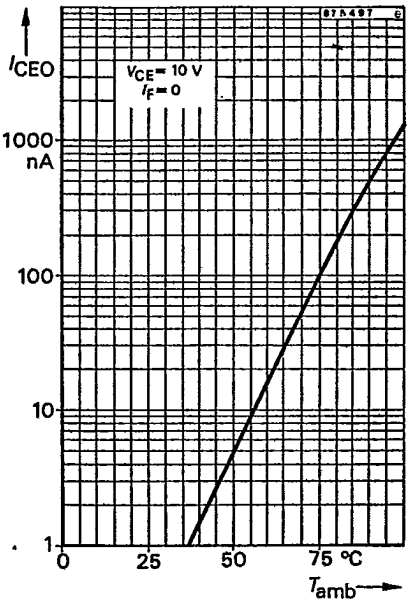

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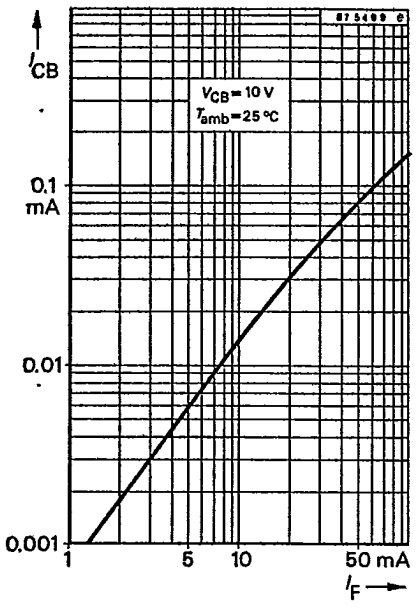

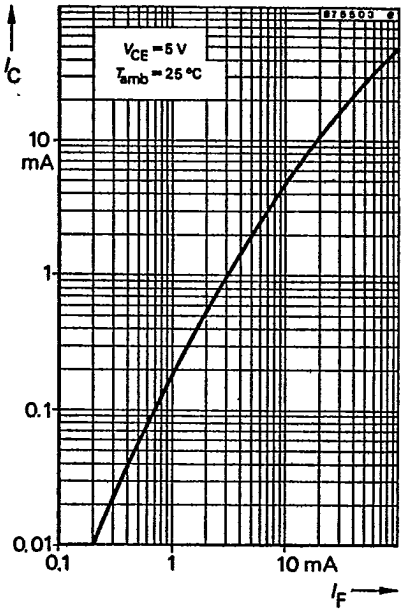

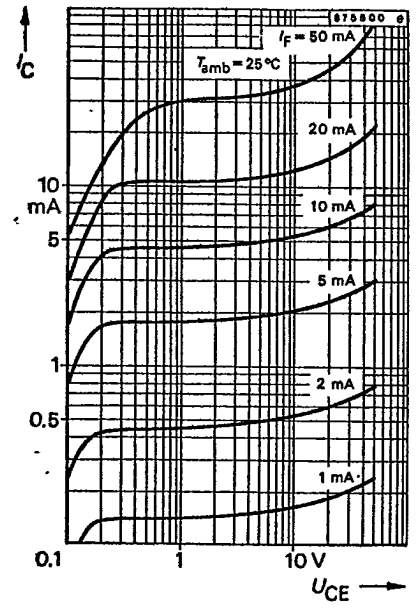

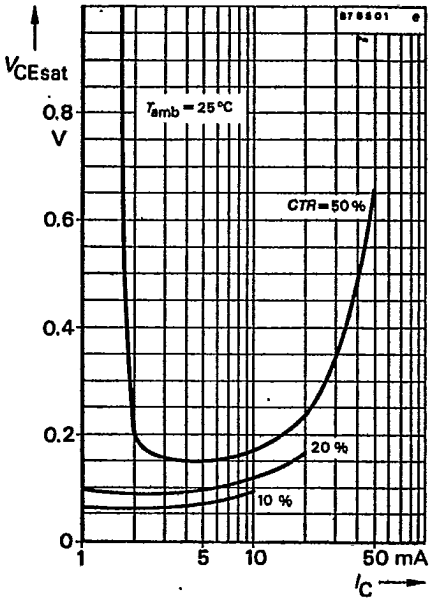

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