

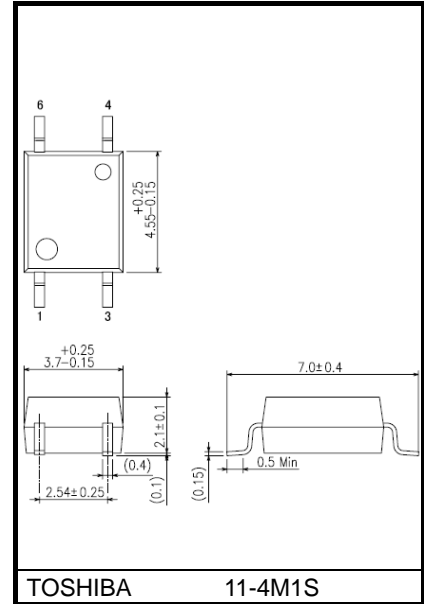
TLP184

Telephone Use Equipment
 Programmable Controllers
 AC / DC-Input Module
 Telecommunication

The TOSHIBA mini flat coupler TLP184 is a small outline coupler, suitable for surface mount assembly.
 TLP184 consist of a photo transistor, optically coupled to a gallium arsenide infrared emitting diode connected inverse parallel, and can operate directly by AC input current.

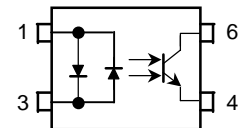
- € Collector-emitter voltage: 80V (min)
- € Current transfer ratio: 50% (min)
 Rank GB: 100% (min)
- € Isolation voltage: 3750 Vrms (min)
- € Operation Temperature:-55 to 110 °C
- € Safety Standards
 UL approved: UL1577, File No. E67349
 cUL approved: CSA Component Acceptance Service No. 5A
 File No.E67349
- € BSI under application: BS EN60065:2002, Certificate No. 9020
 BS EN60950-1:2006, Certificate No. 9021
- € Option (V4) type
 VDE approved: EN60747-5-2, Certificate No. 40009347
 (Note): When a EN60747-5-2 approved type is needed,
 Please designate "Option(V4)"
- € Construction mechanical rating
 Creepage distance : 5.0 mm(min)
 Clearance : 5.0 mm(min)
 Insulation thickness : 0.4 mm(min)

Unit: mm



Weight: 0.08 g (typ.)

Pin Configuration (top view)



- 1: Anode, Cathode
- 3: Cathode, Anode
- 4: Emitter
- 6: Collector

Current Transfer Ratio

Type	Classification(*1)	Current Transfer Ratio (%) (I_C/I_F)		Marking of classification
		$I_F = 5 \text{ mA}, V_{CE} = 5 \text{ V}, T_a = 25^\circ\text{C}$		
		Min	Max	
	Standard	50	400	Blank, YE, GR, B, GB
	Rank Y	50	150	YE
	Rank GR	100	300	GR

Absolute Maximum Ratings (Ta = 25°C)

Characteristic		Symbol	Rating	Unit
LED	R.M.S. forward current	$I_{F(RMS)}$	±50	mA
	Forward current derating (Ta 90°C)	$I_F / ^\circ C$	-1.5	mA / °C
	Pulse forward current (Note 2)	I_{FP}	±1	A
	Junction temperature	T_j	125	°C
Detector	Collector-emitter voltage	V_{CEO}	80	V
	Emitter-collector voltage	V_{ECO}	7	V
	Collector current	I_C	50	mA
	Power dissipation	P_C	150	mW
	Power dissipation derating (Ta 25°C)	$P_C / ^\circ C$	-1.5	mW / °C
	Junction temperature	T_j	125	°C
Operating temperature range		T_{opr}	-55 to 110	°C
Storage temperature range		T_{stg}	-55 to 125	°C
Lead soldering temperature (10 s)		T_{sol}	260(10s)	°C
Total package power dissipation		P_T	200	mW
Total package power dissipation derating (Ta 25°C)		$P_T / ^\circ C$	-2.0	mW / °C
Isolation voltage (AC,1 min., R.H. 60%) (Note 3)		BV_S	3750	Vrms

Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) are within the absolute maximum ratings.

Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/"Derating Concept and Methods") and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

Note 2: Pulse width 100 μs, f=100 Hz

Note 3: Device considered a two terminal device: Pins 1 and 3 shorted together and 4 and 6 shorted together.

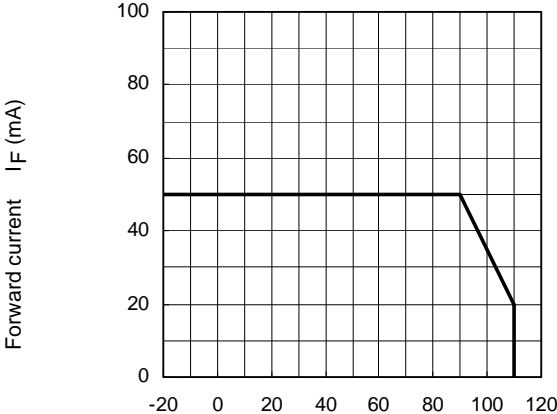
Recommended Operating Conditions (Note)

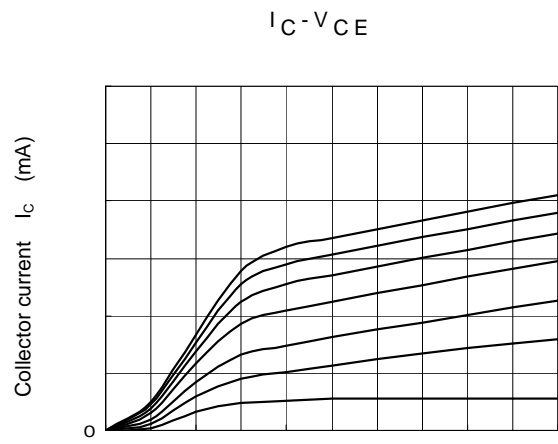
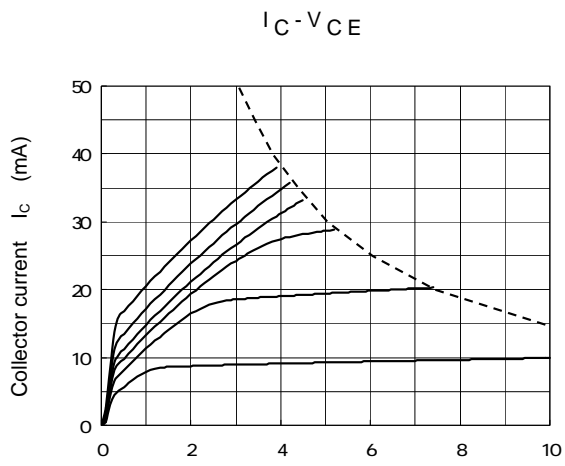
Characteristic	Symbol	Min	Typ.	Max	Unit
Supply voltage	V_{CC}	#	5	48	V
Forward current	I_F		16	20	mA
Collector current	I_C	#	1	10	mA

Note: Recommended operating conditions are given as a design guideline to obtain expected performance of the device. Additionally, each item is an independent guideline respectively. In developing designs using this product, please confirm specified characteristics shown in this document.

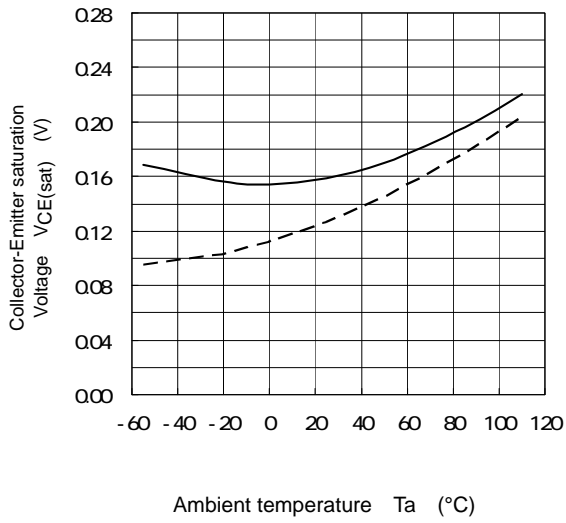
$I_F - T_a$

$P_C - T_a$

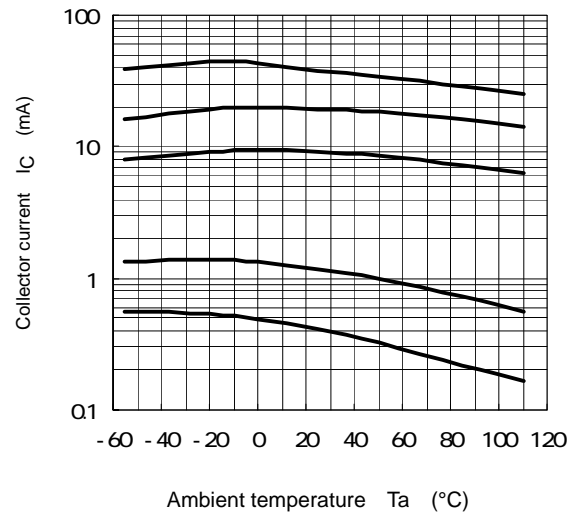




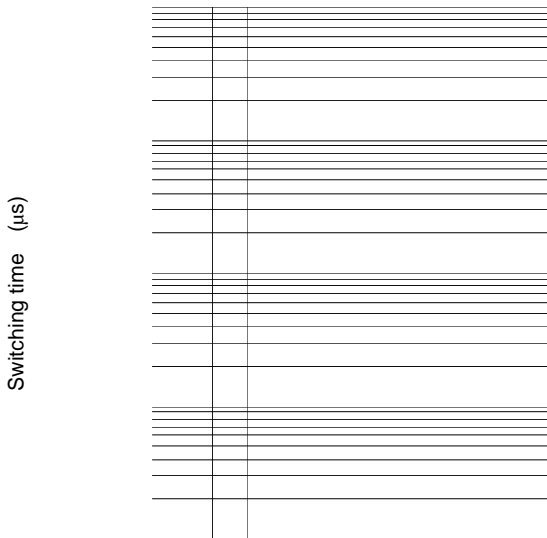
$V_{CE(sat)} - T_a$



$I_C - T_a$



Switching time - R_L



Switching time - T_a

Soldering and Storage

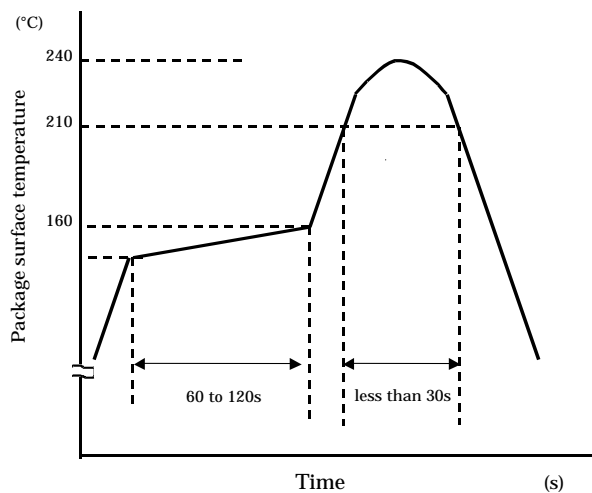
1. Soldering

1.1 Soldering

When using a soldering iron or medium infrared ray/hot air reflow, avoid a rise in device temperature as much as possible by observing the following conditions.

1) Using solder reflow

·Temperature profile example of lead (Pb) solder



·Temperature profile example of using lead (Pb)-free solder

2) Using solder flow (for lead (Pb) solder, or lead (Pb)-free solder)

Please preheat it at 150°C between 60 and 120 seconds.

Complete soldering within 10 seconds below 260°C. Each pin may be heated at most once.

3) Using a soldering iron

Complete soldering within 10 seconds below 260°C, or within 3 seconds at 350°C. Each pin may be heated at most once.

2. Storage

- 1) Avoid storage locations where devices may be exposed to moisture or direct sunlight.
- 2) Follow the precautions printed on the packing label of the device for transportation and storage.
- 3) Keep the storage location temperature and humidity within a range of 5°C to 35°C and 45% to 75%, respectively.
- 4) Do not store the products in locations with poisonous gases (especially corrosive gases) or in dusty conditions.
- 5) Store the products in locations with minimal temperature fluctuations. Rapid temperature changes during storage can cause condensation, resulting in lead oxidation or corrosion, which will deteriorate the solderability of the leads.
- 6) When restoring devices after removal from their packing, use anti-static containers.
- 7) Do not allow loads to be applied directly to devices while they are in storage.
- 8) If devices have been stored for more than two years under normal storage conditions, it is recommended that you check the leads for ease of soldering prior to use.

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