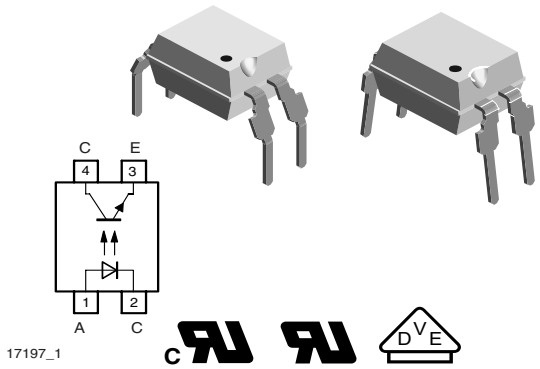
Optocoupler, Phototransistor Output, High Temperarure



DESCRIPTION

The TCET110. consists of a phototransistor optically coupled to a gallium arsenide infrared-emitting diode in a 4-lead plastic dual inline package.
The elements are mounted on one leadframe using a coplanar technique, providing a fixed distance between input and output for highest safety requirements.

VDE STANDARDS

These couplers perform safety functions according to the following equipment standards:

- **DIN EN 60747-5-5**
  Optocoupler for electrical safety requirements
- **IEC 60950/EN 60950**
  Office machines (applied for reinforced isolation for mains voltage ≤ 400 V_{RMS})
- **VDE 0804**
  Telecommunication apparatus and data processing
- **IEC 60065**
  Safety for mains-operated electronic and related household apparatus

FEATURES

- Extra low coupling capacity - typical 0.2 pF
- High common mode rejection
- Low temperature coefficient of CTR
- CTR offered in 9 groups
- Reinforced isolation provides circuit protection against electrical shock (safety class II)
- Isolation materials according to UL94-VO
- Pollution degree 2 (DIN/VDE 0110/resp. IEC 60664)
- Climatic classification 55/100/21 (IEC 60068 part 1)
- Rated impulse voltage (transient overvoltage) V_{IOTM} = 8 kVpeak
- Isolation test voltage (partial discharge test voltage) V_{pd} = 1.6 kV
- Rated isolation voltage (RMS includes DC) V_{IOWM} = 600 V_{RMS}
- Rated recurring peak voltage (repetitive) V_{IORM} = 848 V_{peak}
- Thickness through insulation ≥ 0.75 mm
- Creepage current resistance according to VDE 0303/ IEC 60112 comparative tracking index: CTI ≥ 175
- Lead (Pb)-free component
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC

APPLICATIONS

- switch-mode power supplies
- line receiver
- computer peripheral interface
- microprocessor system interface
- Circuits for safe protective separation against electrical shock according to safety class II (reinforced isolation):
  - for appl. class I - IV at mains voltage ≤ 300 V
  - for appl. class I - III at mains voltage ≤ 600 V according to DIN EN 60747-5-5.

AGENCY APPROVALS

- UL1577, file no. E76222 system code U, double protection
- CSA 22.2 bulletin 5A, double protection
- BSI: EN 60065:2002, EN 60950:2000 certificate no. 7081 and 7402
- DIN EN 60747-5-5
- FIMKO

ORDER INFORMATION

PART	REMARKS
TCET1100	CTR 50 to 600 %, DIP-4
TCET1101	CTR 40 to 80 %, DIP-4
TCET1102	CTR 63 to 125 %, DIP-4
TCET1103	CTR 100 to 200 %, DIP-4
TCET1104	CTR 160 to 320 %, DIP-4
TCET1105	CTR 50 to 150 %, DIP-4
TCET1106	CTR 100 to 300 %, DIP-4
TCET1107	CTR 80 to 160 %, DIP-4
TCET1108	CTR 130 to 260 %, DIP-4
TCET1109	CTR 200 to 400 %, DIP-4
TCET1100G	CTR 50 to 600 %, DIP-4
TCET1101G	CTR 40 to 80 %, DIP-4
TCET1102G	CTR 63 to 125 %, DIP-4
TCET1103G	CTR 100 to 200 %, DIP-4
TCET1104G	CTR 160 to 320 %, DIP-4
TCET1105G	CTR 50 to 150 %, DIP-4
TCET1106G	CTR 100 to 300 %, DIP-4
TCET1107G	CTR 80 to 160 %, DIP-4
TCET1108G	CTR 130 to 260 %, DIP-4
TCET1109G	CTR 200 to 400 %, DIP-4

Note

G = lead form 10.16 mm; G is not marked on the body

ABSOLUTE MAXIMUM RATINGS (1)

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
INPUT				
Reverse voltage		V_R	6	V
Forward current		I_F	60	mA
Forward surge current	$t_P \leq 10$ µs	I_{FSM}	1.5	A
OUTPUT				
Collector emitter voltage		V_{CEO}	70	V
Emitter collector voltage		V_{ECO}	7	V
Collector current		I_C	50	mA
Collector peak current	$t_P/T = 0.5$, $t_P \leq 10$ ms	I_{CM}	100	mA
COUPLER				
Isolation test voltage (RMS)	t = 1 min	V_{ISO}	5000	V_{RMS}
Operating ambient temperature range		T_{amb}	- 40 to + 100	°C
Storage temperature range		T_{stg}	- 55 to + 125	°C
Soldering temperature	2 mm from case, ≤ 10 s	T_{sld}	260	°C

Notes

(1) T_{amb} = 25 °C, unless otherwise specified.
Stresses in excess of the absolute maximum ratings can cause permanent damage to the device. Functional operation of the device is not implied at these or any other conditions in excess of those given in the operational sections of this document. Exposure to absolute maximum ratings for extended periods of the time can adversely affect reliability.

(2) Refer to wave profile for soldering conditions for through hole devices (DIP).