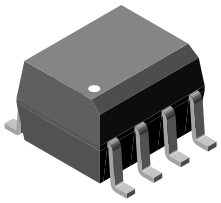
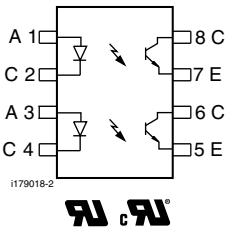
Optocoupler, Phototransistor Output, Dual Channel, SOIC-8 Package





FEATURES

- Two channel coupler
- SOIC-8 surface mountable package
- Standard lead spacing of 0.05"
- Available only on tape and reel option (conforms to EIA standard 481-2)
- Compatible with dual wave, vapor phase and IR reflow soldering
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

Pb-free

e3

RoHS COMPLIANT

LINKS TO ADDITIONAL RESOURCES

Related Documents | Design Tools | 3D Models | Models | Footprints | Schematics

AGENCY APPROVALS

- UL
- cUL

DESCRIPTION

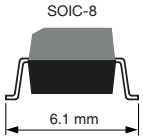
The ILD217T are optically coupled pairs with a GaAs infrared LED and a silicon NPN phototransistor. Signal information, including a DC level, can be transmitted by the device while maintaining a high degree of electrical isolation between input and output. The ILD217T come in a standard SOIC-8 small outline package for surface mounting which makes it ideally suited for high density applications with limited space. In addition to eliminating through-holes requirements, this package conforms to standards for surface mounted devices.

The high BV_{CEO} of 70 V gives a higher safety margin compared to the industry standard of 30 V.

ORDERING INFORMATION

I	L	D	2	1	7	T

PART NUMBER



AGENCY CERTIFIED / PACKAGE	CTR (%)
	1 mA
UL, cUL	≥ 100
SOIC-8	ILD217T

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ABSOLUTE MAXIMUM RATINGS (T_{amb} = 25 °C, unless otherwise specified)				
PARAMETER	**TEST CONDITION**	**SYMBOL**	**VALUE**	**UNIT**
INPUT				
Peak reverse voltage		V_R	6	V
Peak pulsed current	1 µs, 300 pps		1	A
Continuous forward current per channel		I_F	30	mA
Power dissipation		P_{diss}	50	mW
OUTPUT				
Collector emitter breakdown voltage		BV_{CEO}	70	V
Emitter collector breakdown voltage		BV_{ECO}	7	V
Power dissipation per channel		P_{diss}	125	mW
COUPLER				
Total package dissipation ambient (2 LEDs and 2 detectors, 2 channels)		P_{tot}	350	mW
Storage temperature		T_{stg}	-55 to +150	°C
Operating temperature		T_{amb}	-55 to +100	°C
Soldering time from 260 °C (1)		T_{sld}	10	s

Notes

- 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

(1) Refer to reflow profile for soldering conditions for surface mounted devices

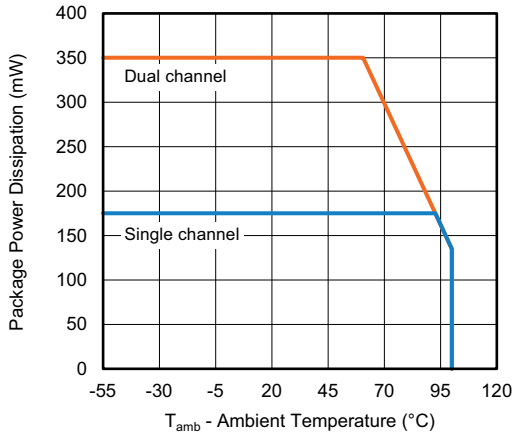


Fig. 1 - Power Dissipation vs. Ambient Temperature

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ELECTRICAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)						
PARAMETER	**TEST CONDITION**	**SYMBOL**	**MIN.**	**TYP.**	**MAX.**	**UNIT**
INPUT						
Forward voltage	I_F = 10 mA	V_F	-	1.2	1.55	V
Reverse current	V_R = 6 V	I_R	-	0.1	100	µA
Capacitance	V_R = 0 V	C_O	-	25	-	pF
OUTPUT						
Collector emitter breakdown voltage	I_C = 10 µA	BV_{CEO}	70	-	-	V
Emitter collector breakdown voltage	I_E = 10 µA	BV_{ECO}	7	-	-	V
Collector emitter leakage current	V_{CE} = 10 V, I_F = 0 A	I_{CEO}	-	5	50	nA
Collector emitter capacitance	V_{CE} = 0 V	C_{CE}	-	10	-	pF
COUPLER						
Collector emitter saturation voltage	I_F = 10 mA, I_C = 2.5 mA	V_{CEsat}	-	-	0.4	V
Capacitance (input to output)		C_{IO}	-	0.5	-	pF

Note

- Minimum and maximum values were tested requirements. Typical values are characteristics of the device and are the result of engineering evaluations. Typical values are for information only and are not part of the testing requirements

CURRENT TRANSFER RATIO (T_{amb} = 25 °C, unless otherwise specified)						
PARAMETER	**TEST CONDITION**	**SYMBOL**	**MIN.**	**TYP.**	**MAX.**	**UNIT**
I_C/I_F	V_{CE} = 5 V, I_F = 1 mA	CTR	100	-	-	%

SAFETY AND INSULATION RATINGS				
PARAMETER	**TEST CONDITION**	**SYMBOL**	**VALUE**	**UNIT**
Climatic classification	According to IEC 68 part 1		55 / 100 / 21	
Pollution degree	According to DIN VDE 0109		2	
Comparative tracking index	Insulation group IIIa	CTI	175	
Maximum rated withstanding isolation voltage	According to UL1577, t = 1 min	V_{ISO}	3333	V_{RMS}
Tested withstanding isolation voltage	According to UL1577, t = 1 s	V_{ISO}	4000	V_{RMS}
Maximum transient isolation voltage	According to DIN EN 60747-5-5	V_{IOTM}	6000	V_{peak}
Maximum repetitive peak isolation voltage	According to DIN EN 60747-5-5	V_{IORM}	560	V_{peak}
Isolation resistance	T_{amb} = 25 °C, V_{IO} = 500 V	R_{IO}	$\geq 10^{12}$	Ω
	T_{amb} = 100 °C, V_{IO} = 500 V	R_{IO}	$\geq 10^{11}$	Ω
Output safety power		P_{SO}	350	mW
Input safety current		I_{SI}	150	mA
Input safety temperature		T_S	165	°C
Creepage distance			≥ 4	mm
Clearance distance			≥ 4	mm
Insulation thickness		DTI	≥ 0.2	mm

Note

- As per IEC 60747-5-5, this optocoupler is suitable for “safe electrical insulation” only within the safety ratings. Compliance with the safety ratings shall be ensured by means of protective circuits

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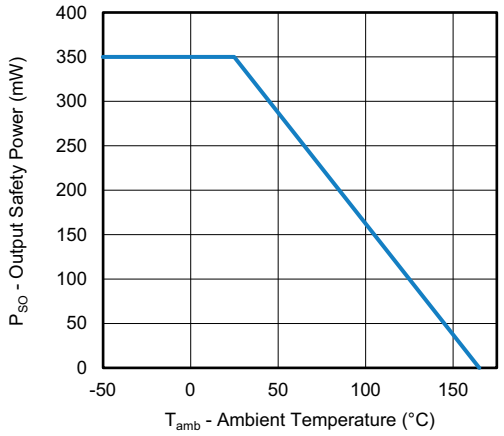


Fig. 2 - Output Safety Power vs. Ambient Temperature

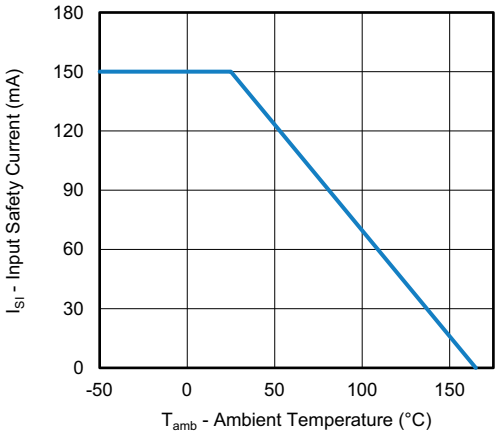


Fig. 3 - Input Safety Current vs. Ambient Temperature

TYPICAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)

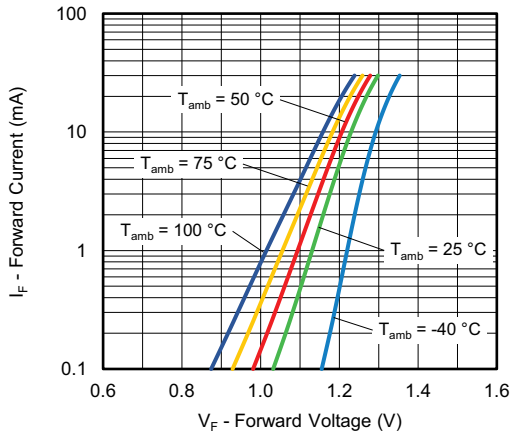


Fig. 4 - Forward Current vs. Forward Voltage

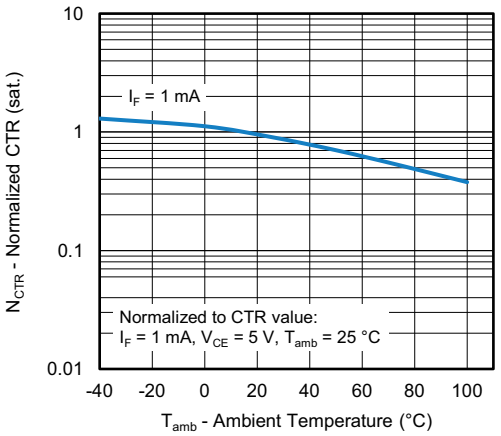


Fig. 6 - Normalized CTR (sat.) vs. Ambient Temperature

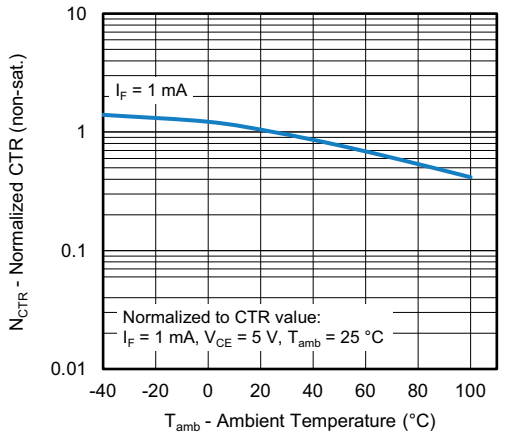


Fig. 5 - Normalized CTR (non-sat) vs. Ambient Temperature

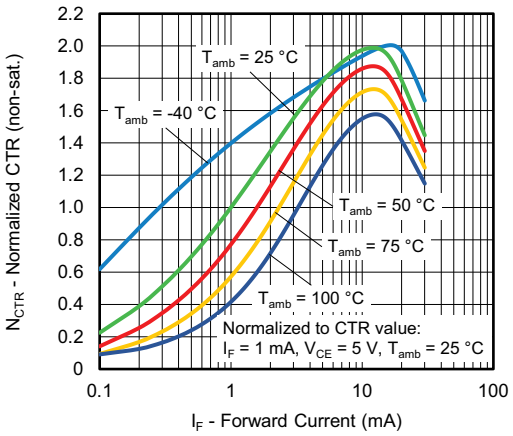


Fig. 7 - Normalized CTR (non-sat.) vs. Forward Current

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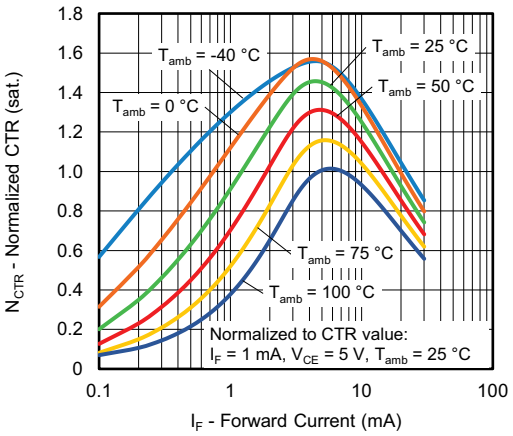


Fig. 8 - Normalized CTR (sat.) vs. Forward Current

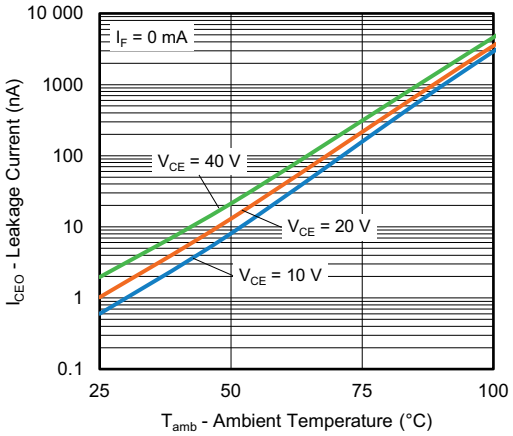
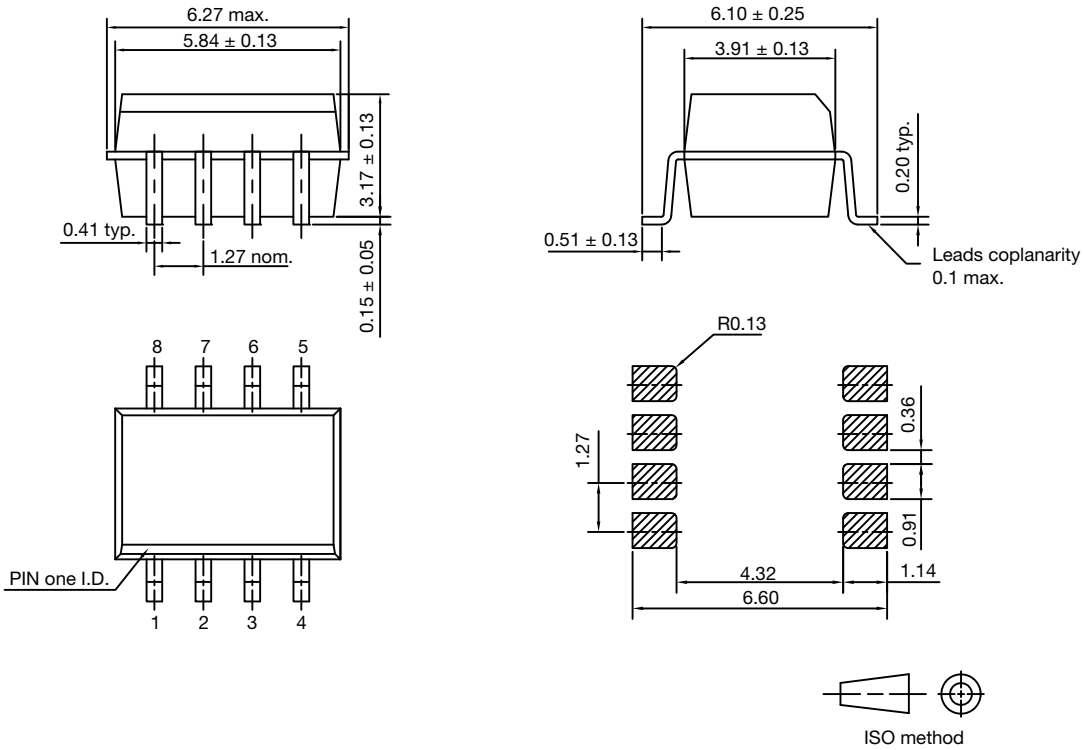
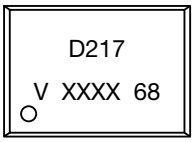


Fig. 9 - Leakage Current vs. Ambient Temperature

PACKAGE DIMENSIONS in millimeters



PACKAGE MARKING (Example)



Notes

- XXXX = LMC (lot marking code)
- Tape and reel suffix (T) is not part of the package marking

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TAPE AND REEL PACKAGING

Dimensions in millimeters

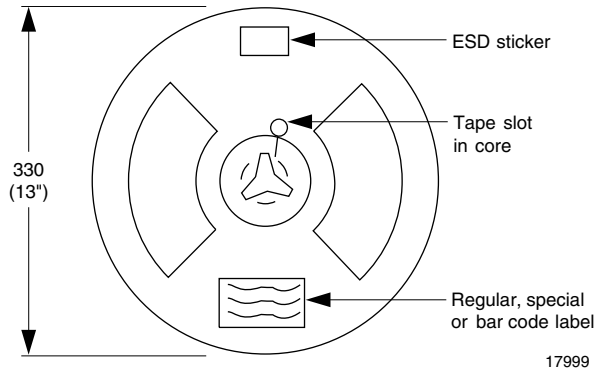


Fig. 10 - Tape and Reel Shipping Medium
(EIA-481, revision A, and IEC 60286), 2000 Units per Reel

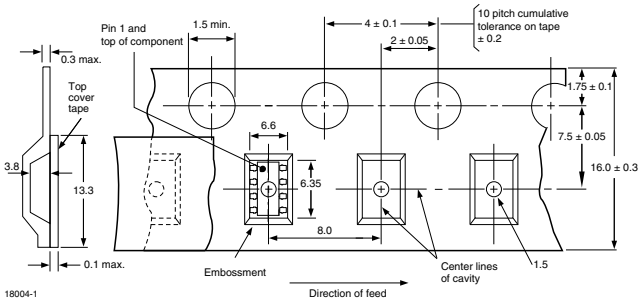


Fig. 11 - Tape Dimensions, 2000 Parts per Reel

SOLDER PROFILE

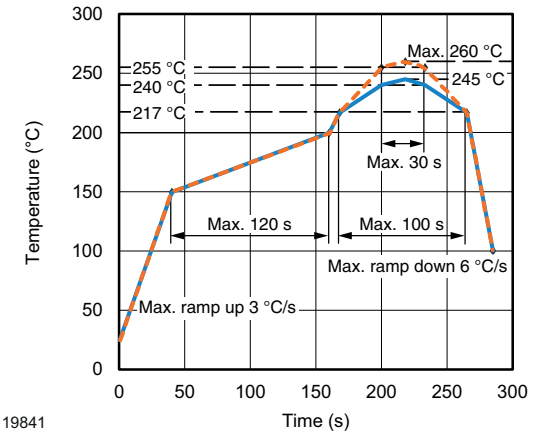


Fig. 12 - Lead (Pb)-free Reflow Solder Profile
according to J-STD-020

HANDLING AND STORAGE CONDITIONS

ESD level: HBM class 2

Floor life: unlimited

Conditions: T_{amb} < 30 °C, RH < 85 %

Moisture sensitivity level 1, according to J-STD-020

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