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SIEMENS

NEW

IL350T/351T/358T/359T

HIGH PERFORMANCE LINEAR OPTOCOUPLER for Optical DAA in Telecommunications

Preliminary Data Sheet

FEATURES

- 2 mm High SMT Package
- High Sensitivity (K1) at Low Operating LED Current
- Couples AC and DC Signals
- Low Input-Output Capacitance
- Isolation Voltage, 2500 V_{RMS}
- Low Distortion
- Available in Tape and Reel (suffix T)

APPLICATIONS

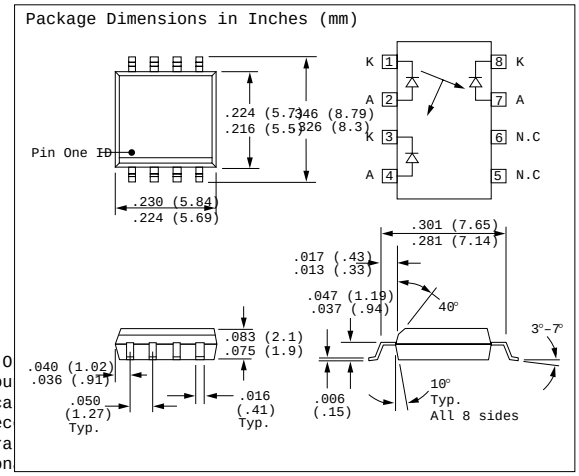
- Optical DAA for V.34 FAX/Modem PCMCIA Cards
- Digital Telephone Line Isolation

DESCRIPTION

The IL350T/1T/8T/9T family of Linear O pler consist of an IRLED optically cou two photodiodes. The emitter mechanica faces both diodes enabling them to rec approximately an equal amount of infra light. The diodes produce a proportion amount of photocurrents. The ratio of tocurrents stays constant with high ac when either the LED current changes or ambient temperature changes. Thus one control the output diode current optic controlling the input photodiode curre

The IL350T/1T/8T/9T optocouplers can b used with the aid of operational ampli closed loop conditions to achieve high and electrically isolated AC and or DC amplifiers.

Package Dimensions in Inches (mm)



Absolute Maximum Ratings

Emitter	Sym	Min.	Max.	Units
Reverse Voltage	V_R		3	V
Forward Current	I_F		30	mA
Surge Current Pulse Width ≤10 µs	I_{PK}		150	mA
Power Dissipation @ 25°C	P_{LED}		150	mW
Dearate Linearly from 25°C			2	mW/°C
Junction Temperature	T_J		100	°C
Detector (each)				
Reverse Voltage	V_R		15	V
Power Dissipation	P		50	mW
Derate Linearly from 25°C			0.65	mW/°C
Junction Temperature	T_J		100	°C
Coupler				
Isolation Test Voltage	V_{ISOL}	2500		V_{RMS}
Total Package Power Dissipation	Pt		250	mW
Derate Linearly from 25°C			2.8	mW/°C
Storage Temperature	T_S	– 40	150	°C
Operating Temperature	T_{OP}	0	75	°C
Lead Soldering Time at 260°C			10	sec.
Isolation Resistance V_{IO}=500 V, TA=25°C V_{IO}=500 V, TA=100°C		10^{12} Ω 10^{11} Ω		

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Electrical Characteristics (T_A=25°C)

LED Emitter	Symbol	Min.	Typ.	Max.	Units	Test Conditions
Forward Voltage	V_F		1.8	2.1	V	I_F=10 mA
Reverse Current	I_R		.01	10	µA	V_R=3 V
V_F Temperature Coefficient	$\Delta V_F/\Delta T$		–2.2		mV/°C	
Junction Capacitance	C_J		TBD		pF	V_F=0 V, f=1 MHz
Dynamic Resistance	$\Delta V_F/\Delta I_F$		6		Ω	I_F=2.5 mA ΔI_F=1 mA
Switching Time IL358T/9T	t_F		40		ns	
	t_R		40		ns	
Detector						
Junction Capacitance	C_J		12		pF	V_R=0 V, f=1 MHz
NEP			$<4^{-14}$		W/√Hz	V_{DET}=0 V
AC Characteristics Photovoltaic Mode						
Frequency Response IL358T/9T	BW(–3dB)		1.0		MHz	I_{P1}=25 µA Modulation current ΔIP1=±6 µA
Phase Response			45		Deg.	
Rise Time			350		ns	
Package						
Input-Output Capacitance	C_{IO}		1		pF	V_F=0 V, f=1 MHz
Common Mode Capacitance	C_{cm}		0.5		pF	V_F=0 V, f=1 MHz
Coupled Characteristics						

	K1 at I_F=2 mA, V_D=0 V			K3 Bins
	Min.	Typ.	Max.	
IL350T	0.003			A–J
IL351T	0.005			D, E, F, G
IL358T	0.008			D, E, F, G
IL359T	0.008			E, F

Bin Table

Bin	Min.	Max.
A	0.557	0.626
B	0.620	0.696
C	0.690	0.773
D	0.765	0.859
E	0.851	0.955
F	0.945	1.061
G	1.051	1.181
H	1.169	1.311
I	1.297	1.456
J	1.442	1.618