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EMIC NDUCT R



Pin Definitions

Number	Name	Function Description
1	ANODE	Anode
3	CATHODE	Cathode
4	GND	Output Ground
5	V _O	Output Voltage
6	V _{CC}	Output Supply Voltage

Safety and Insulation Ratings for Mini-Flat Package (SO5 Pin)

As per IEC60747-5-2 (Pending Certification). This optocoupler is suitable for “safe electrical insulation” only within the safety limit data. Compliance with the safety ratings shall be ensured by means of protective circuits.

Symbol	Parameter	Min.	Typ.	Max.	Unit
	Installation Classifications per DIN VDE 0110/1.89 Table 1				
	For rated main voltage < 150Vrms		I-IV		
	For rated main voltage < 300Vrms		I-III		
	Climatic Classification		40/85/21		
	Pollution Degree (DIN VDE 0110/1.89)		2		
CTI	Comparative Tracking Index	175			
V _{PR}	Input to Output Test Voltage, Method b, V _{IORM} x 1.875 = V _{PR} , 100% Production Test with t _m = 1 sec, Partial Discharge < 5 pC	1060			
V _{PR}	Input to Output Test Voltage, Method a, V _{IORM} x 1.5 = V _{PR} , Type and Sample Test with t _m = 60 sec, Partial Discharge < 5 pC	848			
V _{IORM}	Max Working Insulation Voltage	565			V _{peak}
V _{IOTM}	Highest Allowable Over Voltage	4000			V _{peak}
	External Creepage	5.0			mm
	External Clearance	5.0			mm
	Insulation thickness	0.5			mm
T _{Case}	Safety Limit Values, Maximum Values allowed in the event of a failure, Case Temperature	150			°C
R _{IO}	Insulation Resistance at T _S , V _{IO} = 500V	10 ⁹			Ω

Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only.

Symbol	Parameter	Value	Units
T_{STG}	Storage Temperature	-40 to +125	$^{\circ}\text{C}$
T_{OPR}	Operating Temperature	-40 to +85	$^{\circ}\text{C}$
T_{J}	Junction Temperature	-40 to +125	$^{\circ}\text{C}$
T_{SOL}	Lead Solder Temperature (Refer to Reflow Temperature Profile)	260 for 10sec	$^{\circ}\text{C}$
I_{F}	Forward Current	50	mA
V_{R}	Reverse Voltage	5.0	V
V_{CC}	Supply Voltage	0 to 7.0	V
V_{O}	Output Voltage	-0.5 to $V_{\text{CC}}+0.5$	V
I_{O}	Average Output Current	50	mA
PD_{I}	Input Power Dissipation ⁽¹⁾⁽²⁾	100	mW
PD_{O}	Output Power Dissipation ⁽¹⁾⁽²⁾	85	mW

Recommended Operating Conditions

The Recommended Operating Conditions table defines the conditions for actual device operation. Recommended operating conditions are specified to ensure optimal performance to the datasheet specifications. Fairchild does not recommend exceeding them or designing to Absolute Maximum Ratings.

Symbol	Parameter	Min.	Max.	Unit
T_{A}	Ambient Operating Temperature	-40	+85	$^{\circ}\text{C}$
V_{CC}	Supply Voltages ⁽³⁾	4.5	5.5	V
V_{FL}				

Isolation Characteristics ($T_A=25^{\circ}\text{C}$)**Notes:**

1. No derate required to 85 $^{\circ}\text{C}$.
2. Functional operation under these conditions is not implied. Permanent damage may occur if the device is subjected to conditions outside these ratings.
3. 0.1 μF bypass capacitor must be connected between pins 4 and 6.
4. Device is considered a two terminal device: Pins 1 and 3 are shorted, and Pins 4, 5, and 6 are shorted together.
5. 3,750 VAC_{RMS} for 1 minute duration is equivalent to 4,500 VAC_{RMS} for 1 second duration.



Typical Performance Curves

Fig. 1 Input LED Current vs Forward Voltage

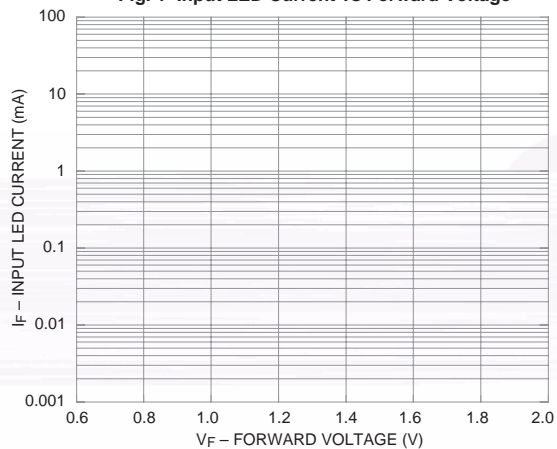


Fig. 2 Threshold Input Current vs Ambient Temperature

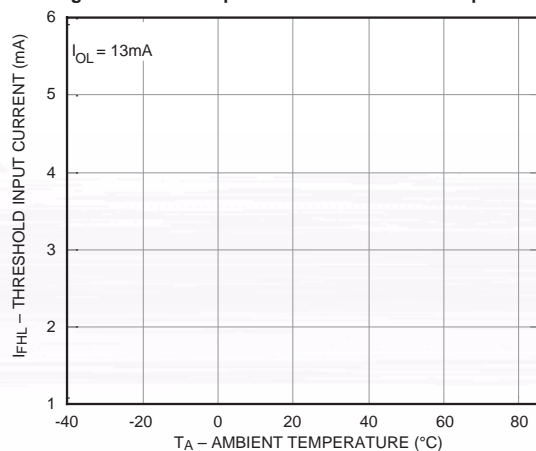


Fig. 3 Low Level Output Voltage vs. Ambient Temperature

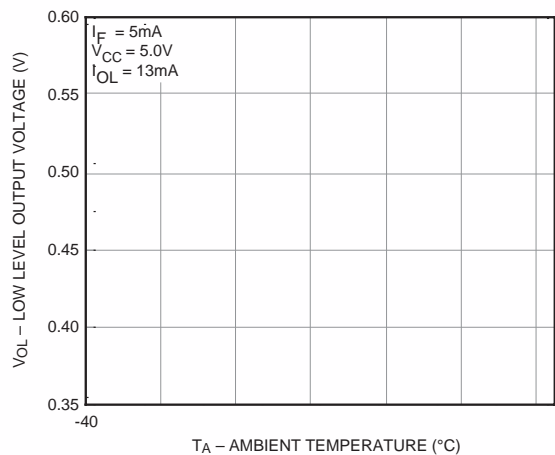
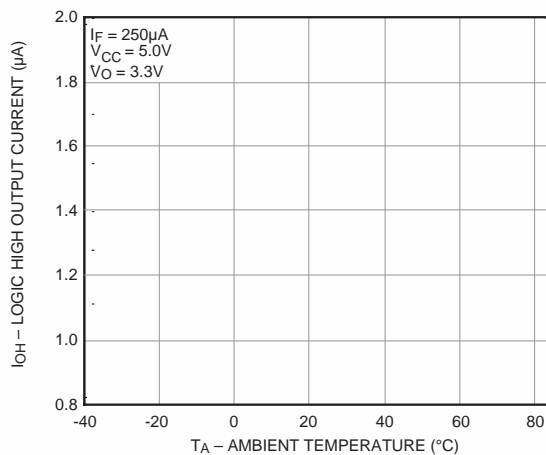
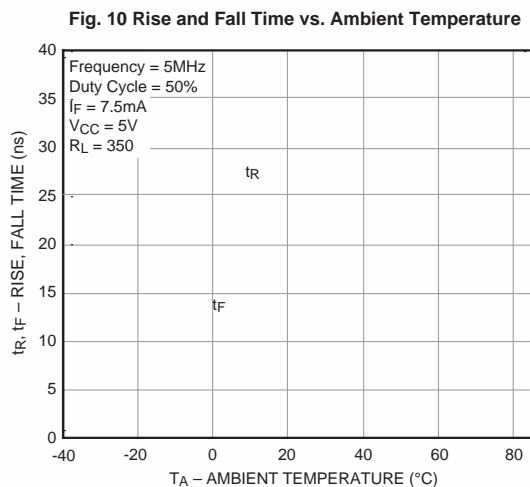
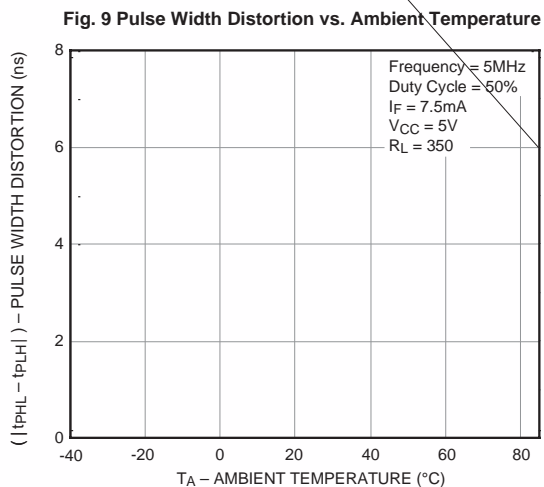
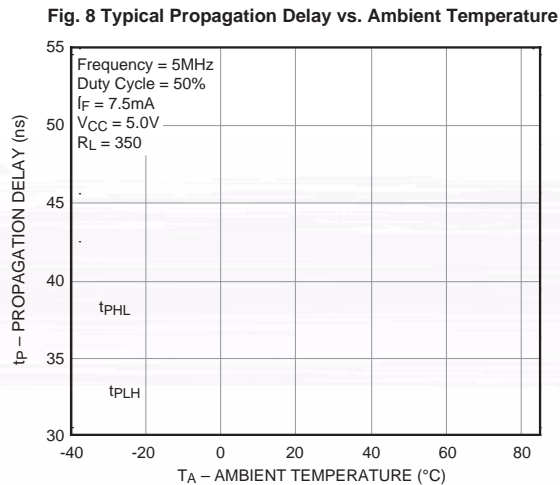
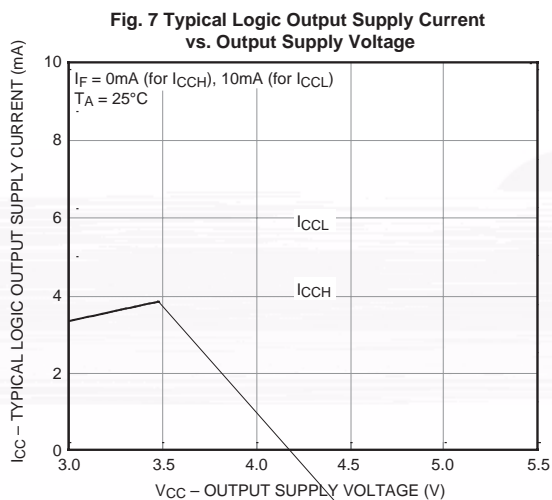


Fig. 4 Logic High Output Current vs Ambient Temperature



Typical Performance Curves (Continued)



Schematics

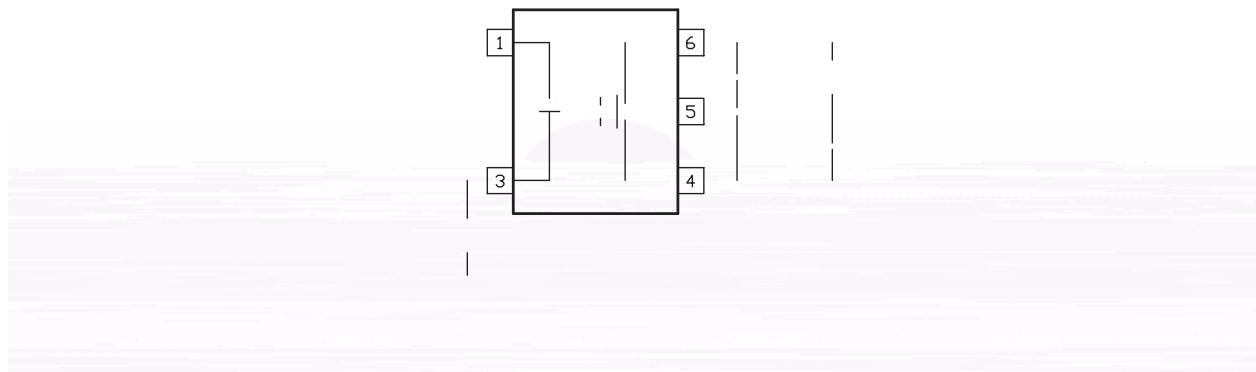
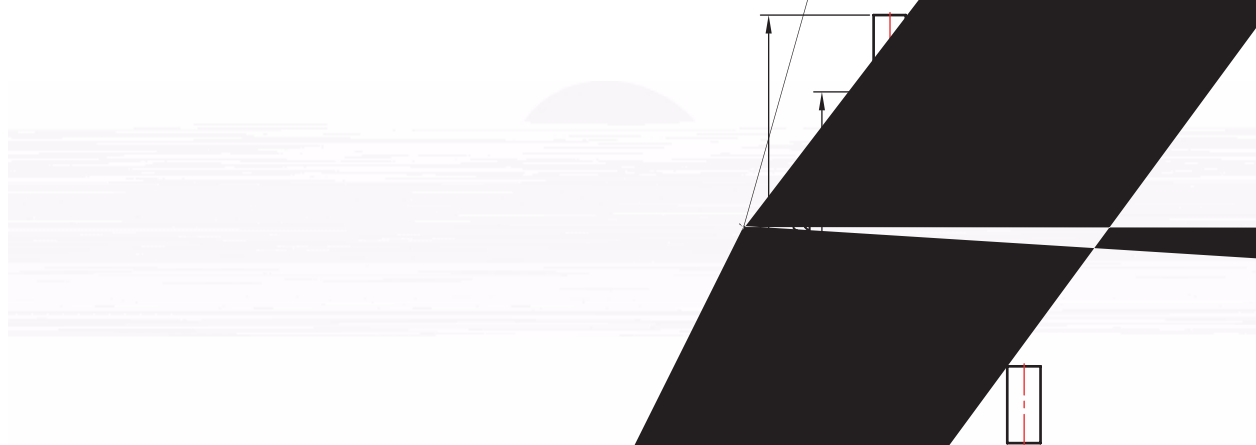


Figure 11. Test Circuit for Propagation Delay Time, Rise Time and Fall Time

Figure 12. Test Circuit for Instantaneous Common Mode Rejection Voltage

Package Dimensions



Notes:

1. No standard applies.
2. All dimensions are in millimeters.
3. Dimensions are given to the center of leads, mold flash, and tie bar extrusion.
4. Drawings files name: FODM611; revision: MKT-MFP05A.


Package drawings are provided as a service to customers considering Fairchild components. Drawings may change in any manner without notice. Please note the revision and/or date on the drawing and contact a Fairchild Semiconductor representative to verify or obtain the most recent package specifications do not expand the terms of Fairchild's worldwide terms and conditions, specifically the warranty which covers Fairchild products.

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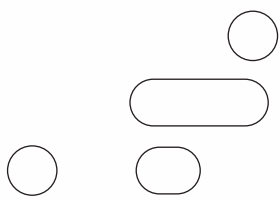
<http://www.fairchildsemi.com/packaging/>

Ordering Information

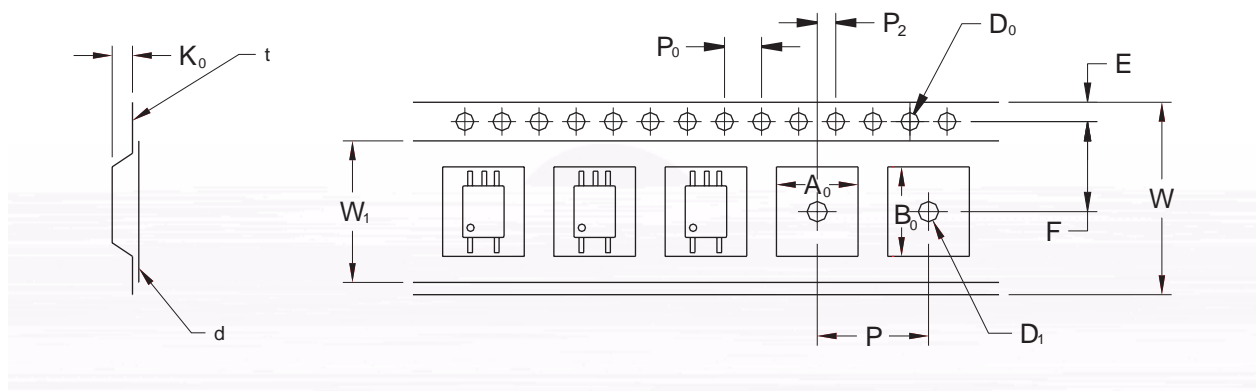
Option	Order Entry Identifier (Example)	Description
No Suffix	FODM611	Mini-Flat 5-pin, shipped in tubes (100 units per tube)
R2	FODM611R2	Mini-Flat 5-pin, tape and reel (2,500 units per reel)

 All packages are lead free per JEDEC: J-STD-020B standard.

Marking Information



Tape and Reel Dimensions



Description	Symbol	Dimensions (mm)
Tape Width	W	12.00 +0.30/-0.10
Tape Thickness	t	
Sprocket Hole Pitch	P_0	
Sprocket Hole Diameter	D_0	
Sprocket Hole Location	E	
Pocket Location	F	
	P_2	
Pocket Pitch	P	
Pocket Dimension	A_0	
	B_0	7.30 ±0.10
	K_0	
Pocket Hole Diameter	D_1	
Cover Tape Width	W_1	
Cover Tape Thickness	d	
Max. Component Rotation or Tilt		
Devices Per Reel		
Reel Diameter		330mm (13")

Reflow Profile



Profile Feature	Pb-Free Assembly Profile
Temperature Min. (T _{smin})	150°C
Temperature Max. (T _{smax})	200°C
Time (t _S) from (T _{smin} to T _{smax})	60–120 seconds
Ramp-up Rate (t _L to t _P)	3°C/second max.
Liquidous Temperature (T _L)	217°C
Time (t _L) Maintained Above (T _L)	60–150 seconds
Peak Body Package Temperature	260°C +0°C / -5°C
Time (t _P) within 5°C of 260°C	30 seconds
Ramp-down Rate (T _P to T _L)	6°C/second max.
Time 25°C to Peak Temperature	8 minutes max.

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CTL	ISOPF282A.091 (ie)-8.6(sMsTj/T)(®)Tj7.06 0)5Td0e6g210E
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