



FOD815 Series 4-Pin High Operating Temperature Photodarlington Optocoupler

Features

- Applicable to Pb-free IR reflow soldering
- Compact 4-pin package
- High current transfer ratio: 600% minimum
- C-UL, UL, and VDE approved
- High input-output isolation voltage of 5000Vrms
- Higher operating temperature (versus H11B815)

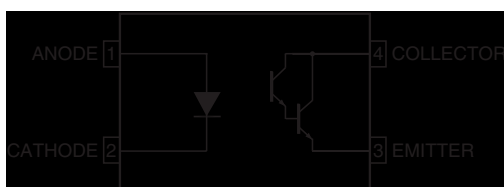
Applications

- Power supply regulators
- Digital logic inputs
- Microprocessor inputs

Description

The FOD815 consists of a gallium arsenide infrared emitting diode, driving a silicon photodarlington output in a 4-pin dual in-line package.

Functional Block Diagram



Absolute Maximum Ratings (T_A = 25°C Unless otherwise specified.)

Symbol	Parameter	Value	Units
TOTAL DEVICE			
T _{STG}	Storage Temperature	-55 to +125	°C
T _{OPR}	Operating Temperature	-30 to +105	°C
T _{SOL}	Lead Solder Temperature	260 for 10 sec	°C
P _{TOT}	Total Power Dissipation	200	mW
INPUT			
I _F	Forward Current	50	mA
P	Power Dissipation	70	mW
OUTPUT			
V _{CEO}	Collector-Emitter Voltage	35	V
V _{ECO}	Emitter-Collector Voltage	6	V
I _C	Collector Current	80	mA
P _C	Collector Power Dissipation	150	mW

Electrical Characteristics ($T_A = 25^\circ\text{C}$ Unless otherwise specified.)**Individual Component Characteristics**

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
INPUT						
V_F	Forward Voltage	$I_F = 20\text{mA}$	–	1.2	1.4	V
C_t	Terminal Capacitance	$V = 0, f = 1\text{kHz}$	–	50	250	pF
OUTPUT						
I_{CEO}	Collector Dark Current	$V_{CE} = 10\text{V}, I_F = 0$	–	–	1	μA
BV_{CEO}	Collector-Emitter Breakdown Voltage	$I_C = 0.1\text{mA}, I_F = 0$	35	–	–	V
BV_{ECO}	Emitter-Collector Breakdown Voltage	$I_E = 10\mu\text{A}, I_F = 0$	6	–	–	V

Transfer Characteristics ($T_A = 25^\circ\text{C}$ Unless otherwise specified.)

Symbol	DC Characteristic	Test Conditions	Min.	Typ.	Max.	Unit
I_C	Collector Current	$I_F = 1\text{mA}, V_{CE} = 2\text{V}$	6	–	75	mA
CTR	Current Transfer Ratio ⁽¹⁾		600	–	7,500	%
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_F = 20\text{mA}, I_C = 5\text{mA}$	–	0.8	1	V
f_C	Cut-Off Frequency	$V_{CE} = 5\text{V}, I_C = 2\text{mA}, R_L = 100\Omega, -3\text{dB}$	1	6	–	KHz
t_r	Response Time (Rise)	$V_{CE} = 2\text{V}, I_C = 10\text{mA}, R_L = 100\Omega$	–	60	300	μs
t_f	Response Time (Fall)		–	53	250	μs

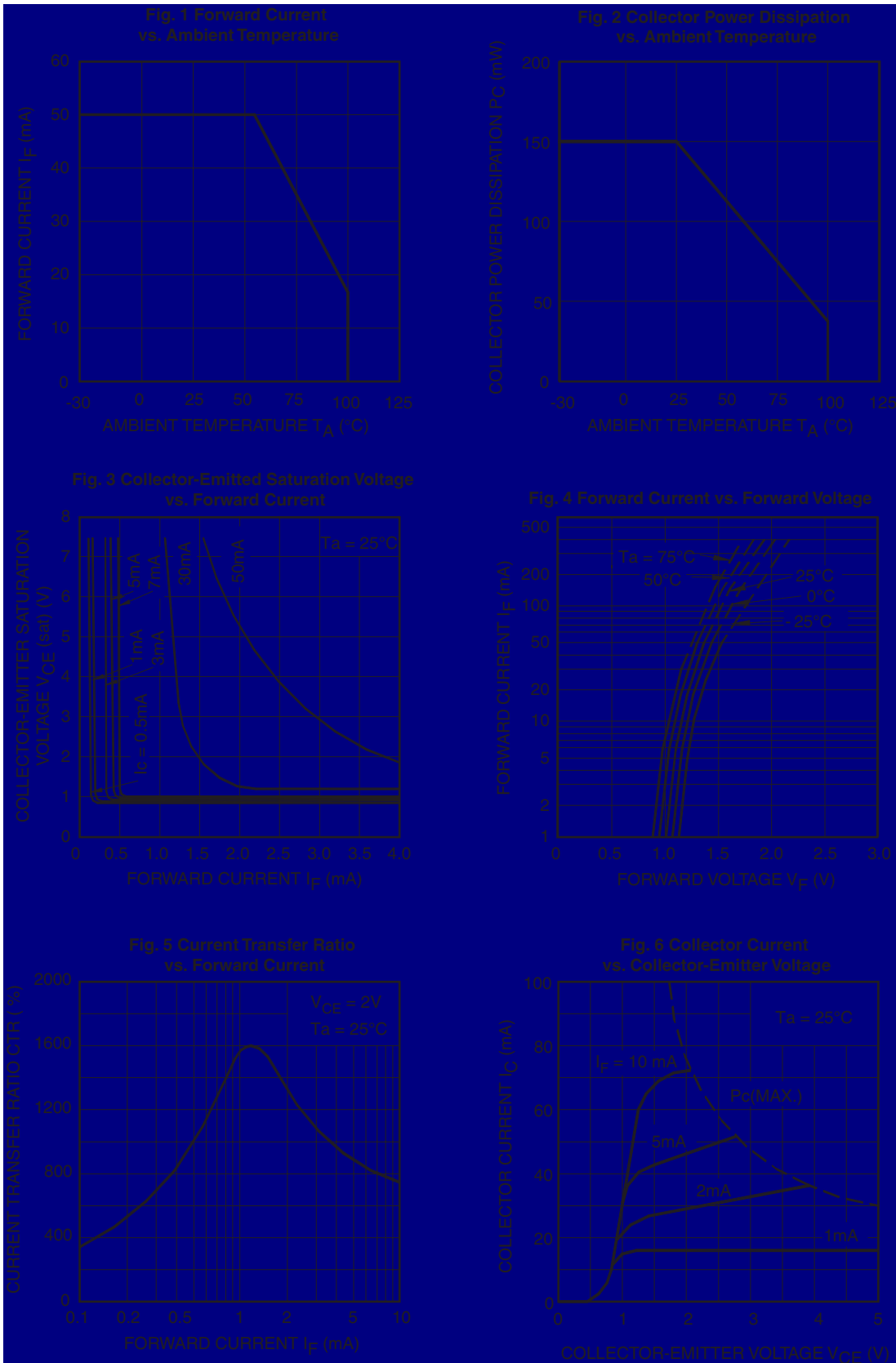
Isolation Characteristics

Symbol	Characteristic	Test Conditions	Min.	Typ.	Max.	Units
V_{ISO}	Input-Output Isolation Voltage	$f = 60\text{Hz}, t = 1\text{min}, I_{I-O} \leq 2\mu\text{A}$	5000	–	–	Vac(rms)
R_{ISO}	Isolation Resistance	DC500V 40~60% R.H.	5×10^{10}	1×10^{11}	–	Ω
C_f	Floating Capacitance	$V = 0, f = 1\text{MHz}$	–	0.6	1	pF

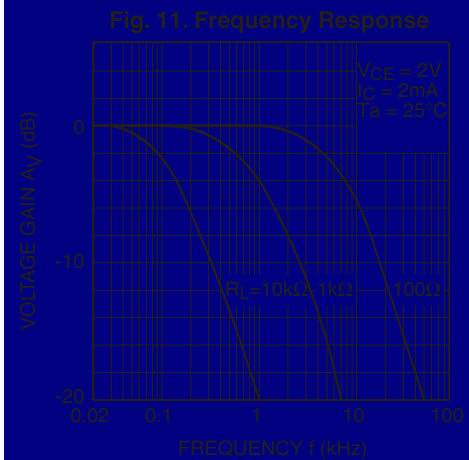
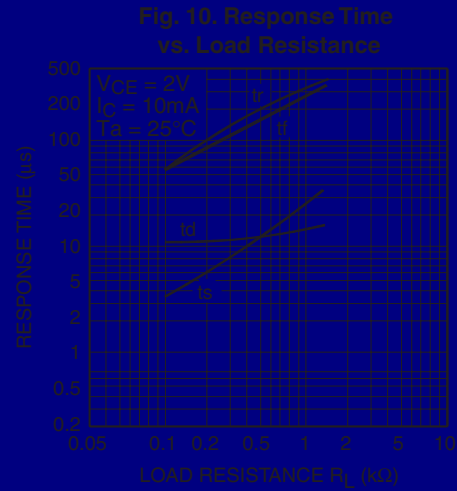
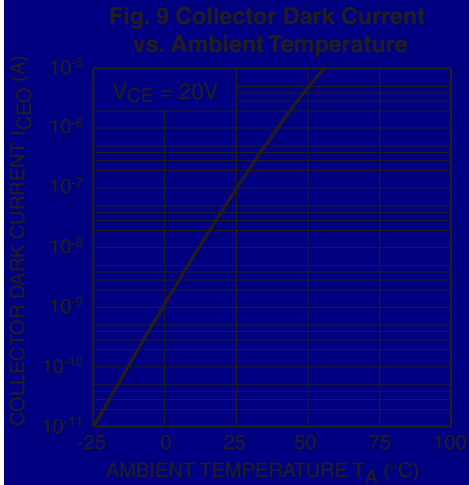
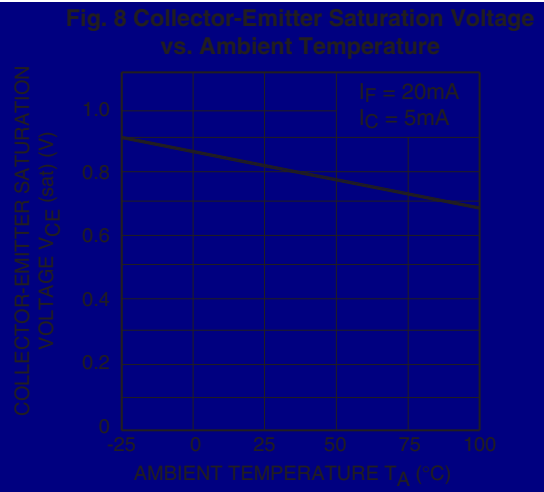
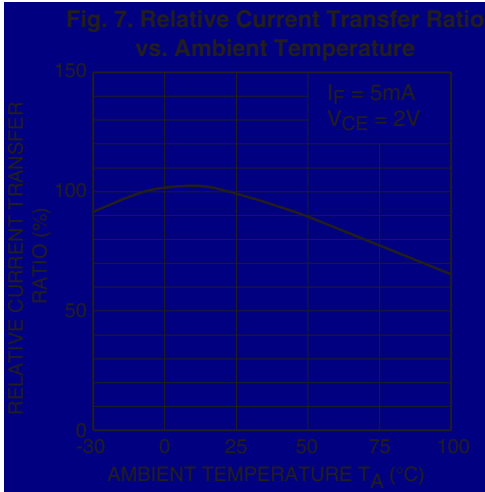
Note:

- Current Transfer Ratio (CTR) = $I_C/I_F \times 100\%$.

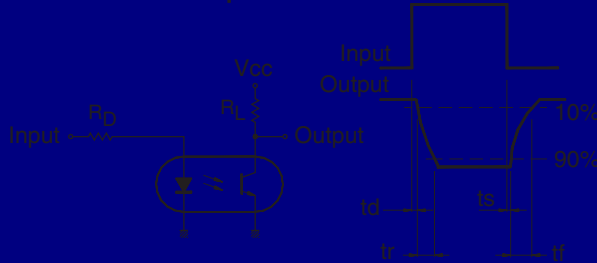
Typical Electrical/Optical Characteristic Curves ($T_A = 25^\circ\text{C}$ Unless otherwise specified.)



Typical Electrical/Optical Characteristic Curves ($T_A = 25^\circ\text{C}$ Unless otherwise specified.)

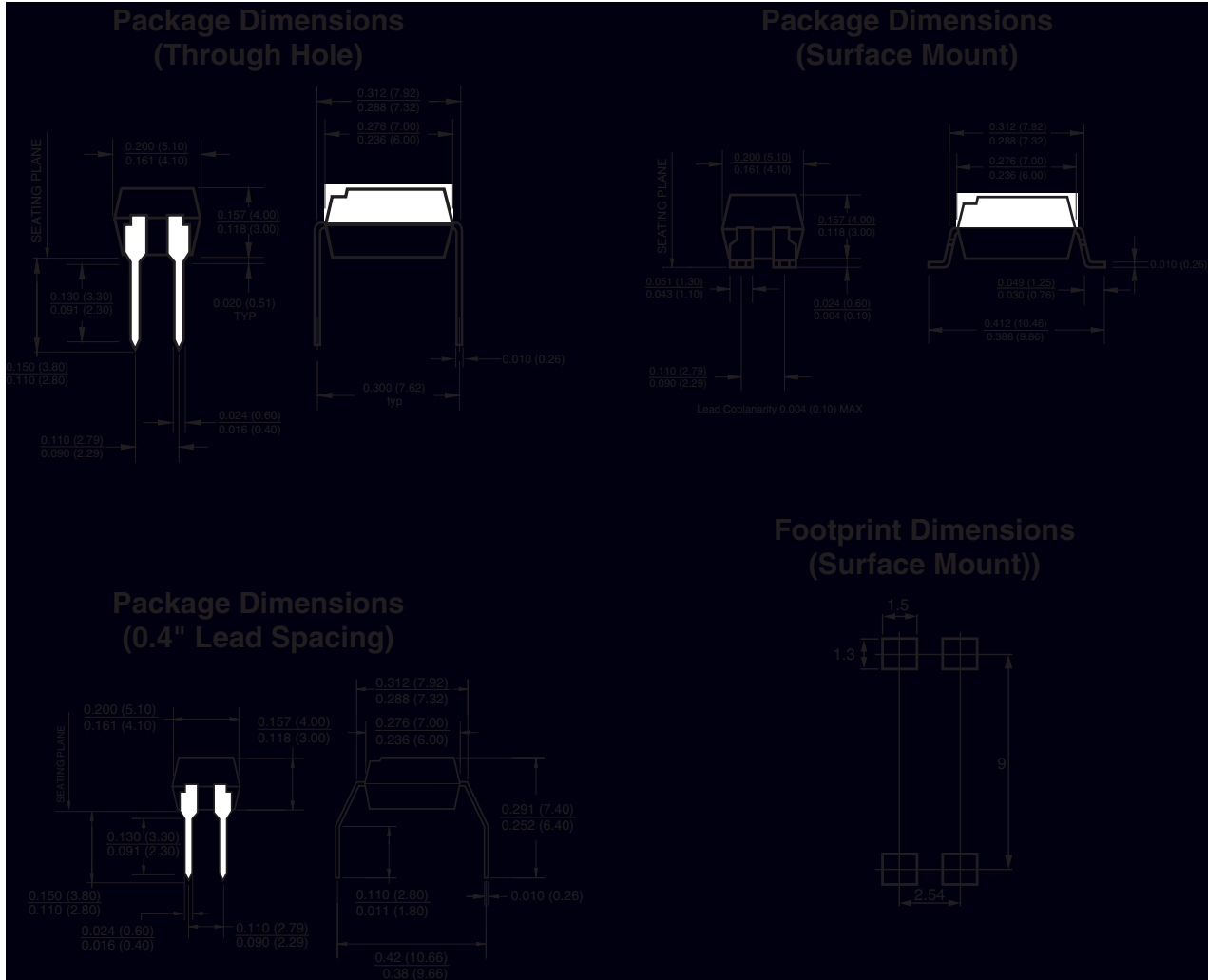


Test Circuit for Response Time



Test Circuit for Frequency Response



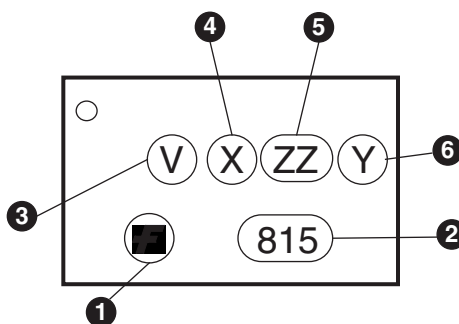


Note:
All dimensions are in inches (millimeters)

Ordering Information

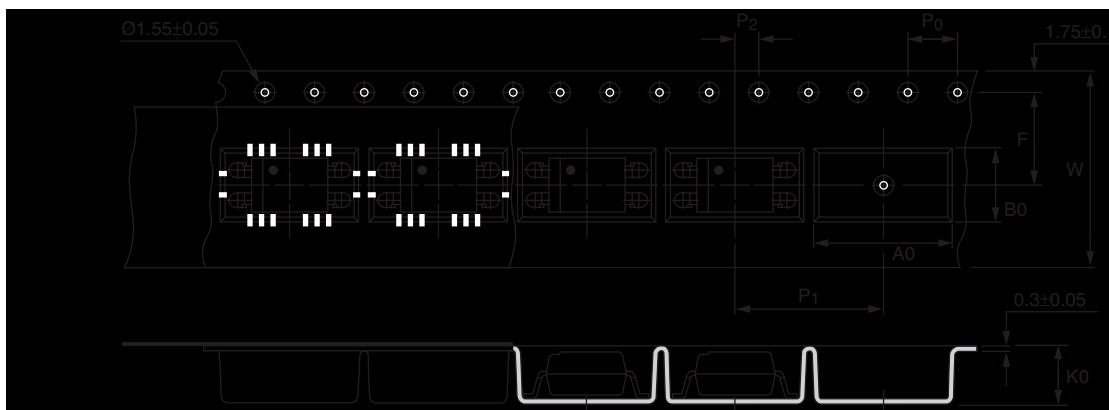
Option	Order Entry Identifier	Description
S	.S	Surface Mount Lead Bend
SD	.SD	Surface Mount; Tape and reel
W	.W	0.4" Lead Spacing
300	.300	VDE Approved
300W	.300W	VDE Approved, 0.4" Lead Spacing
3S	.3S	VDE Approved, Surface Mount
3SD	.3SD	VDE Approved, Surface Mount, Tape & Reel

Marking Information



Definitions	
1	Fairchild logo
2	Device number
3	VDE mark (Note: Only appears on parts ordered with VDE option – See order entry table)
4	One digit year code
5	Two digit work week ranging from '01' to '53'
6	Assembly package code

Carrier Tape Specifications

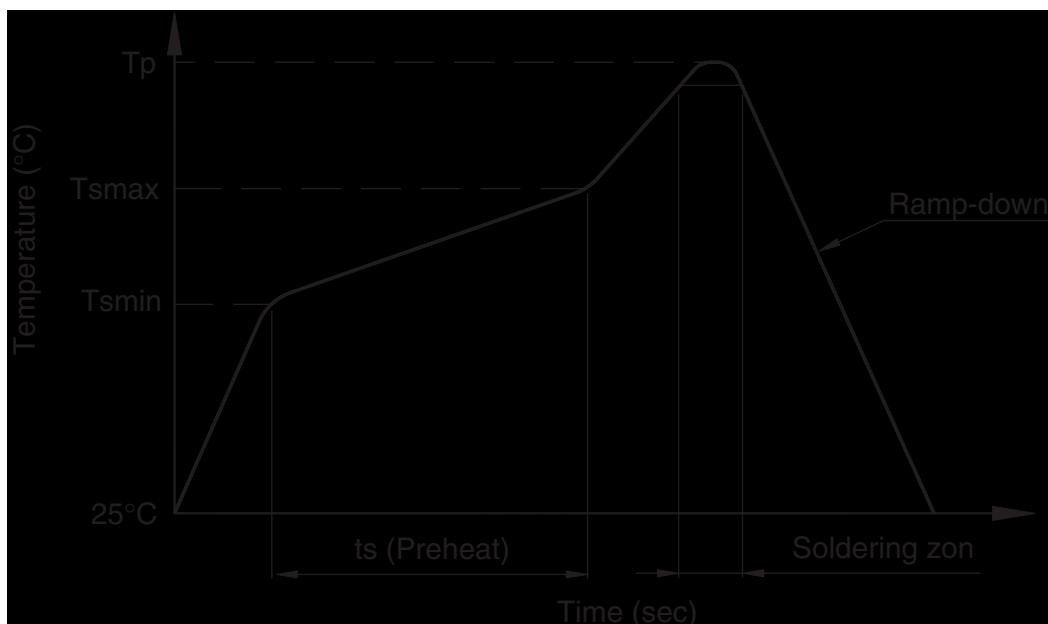


Note:

All dimensions are in millimeters.

Description	Symbol	Dimensions in mm (inches)
Tape wide	W	16 ± 0.3 (.63)
Pitch of sprocket holes	P_0	4 ± 0.1 (.15)
Distance of compartment	F	7.5 ± 0.1 (.295)
	P_2	2 ± 0.1 (.079)
Distance of compartment to compartment	P_1	12 ± 0.1 (.472)
Compartment	A_0	10.45 ± 0.1 (.411)
	B_0	5.30 ± 0.1 (.209)
	K_0	4.25 ± 0.1 (.167)

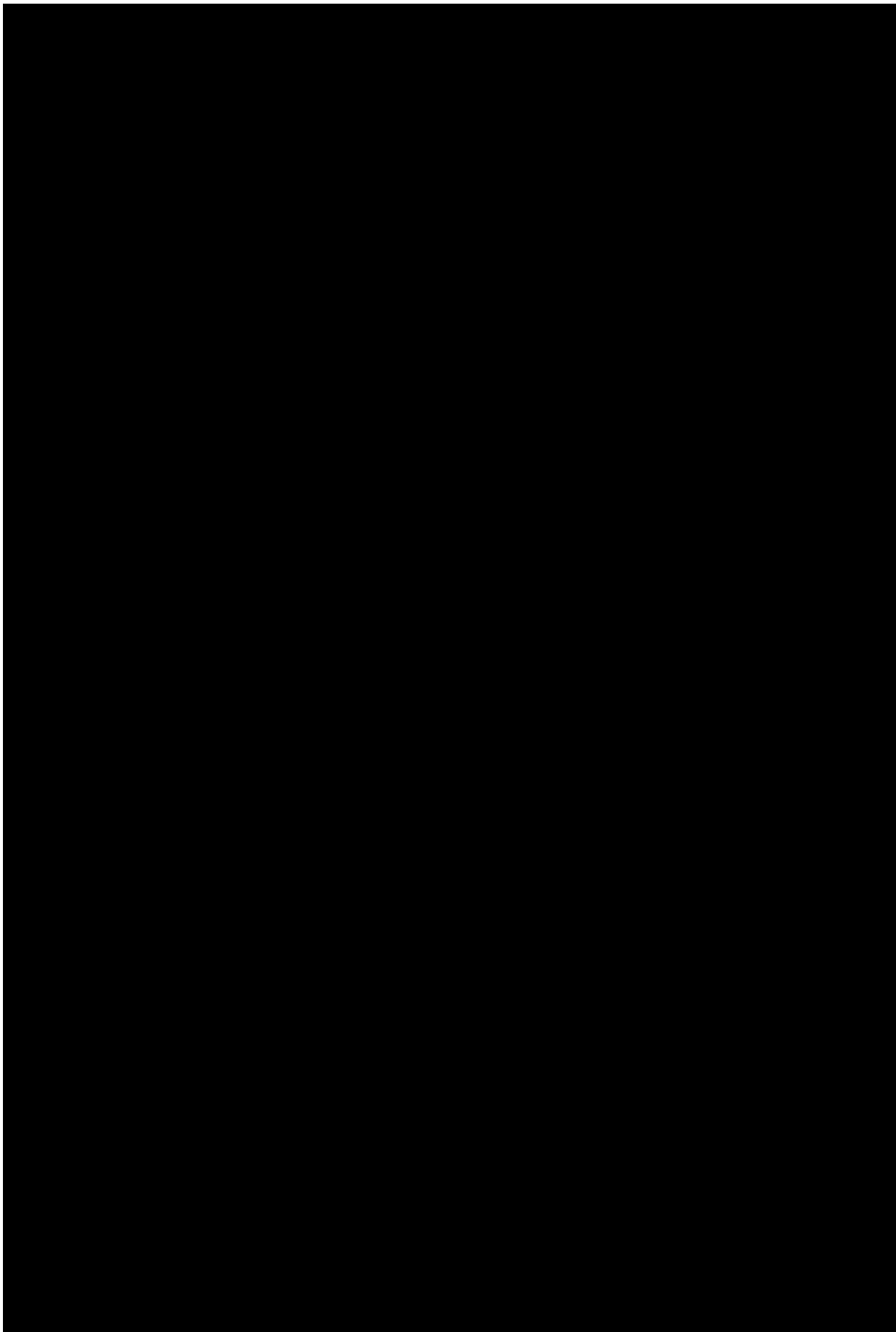
Lead Free Recommended IR Reflow Condition



Profile Feature	Pb-Sn solder assembly	Lead Free assembly
Preheat condition (Tsmín-Tsmáx / ts)	100°C ~ 150°C 60 ~ 120 sec	150°C ~ 200°C 60 ~ 120 sec
Melt soldering zone	183°C 60 ~ 120 sec	217°C 30 ~ 90 sec
Peak temperature (Tp)	240 +0/-5°C	260 +0/-5°C
Ramp-down rate	6°C/sec max.	6°C/sec max.

Recommended Wave Soldering condition

Profile Feature	For all solder assembly
Peak temperature (Tp)	Max 260°C for 10 sec



Home >> Find products >>

FOD815

DC Input, Darlington Output 4-pin DIP

Contents

- [General description](#)
- [Features](#)
- [Applications](#)
- [Product status/pricing/packaging](#)
- [Order Samples](#)
- [Safety agency certificates](#)
- [Qualification Support](#)

General description

The FOD815 consists of a gallium arsenide infrared emitting diode, driving a silicon photodarlington output in a 4-pin dual in-line package.

[back to top](#)

Features

- Applicable to Pb-free IR reflow soldering
- Compact 4-pin package
- High current transfer ratio: 600% minimum
- C-UL, UL, and VDE approved
- High input-output isolation voltage of 5000Vrms
- Higher operating temperature (versus H11B815)

[back to top](#)

Applications

- Power supply regulators
- Digital logic inputs
- Microprocessor inputs

[back to top](#)

Product status/pricing/packaging

BUY

BUY

Datasheet

[Download this datasheet](#)



[e-mail this datasheet](#)



This page

[Print version](#)

Related Links

[Request samples](#)

[How to order products](#)



[Product Change Notices \(PCNs\)](#)

[Support](#)

[Sales support](#)

[Quality and reliability](#)

[Design center](#)

Product	Product status	Pb-free Status	Pricing*	Package type	Leads	Packing method
FOD815	Full Production	 Full Production	\$0.257	DIP-B	4	BOX
FOD815300	Full Production	 Full Production	\$0.257	DIP-B	4	BOX
FOD815300W	Full Production	 Full Production	\$0.257	DIP-B	4	BOX
FOD8153S	Full Production	 Full Production	\$0.257	DIP-B	4	BOX
FOD8153SD	Full Production	 Full Production	\$0.257	SMDIP-B	4	TAPE REEL
FOD815S	Full Production	 Full Production	\$0.257	DIP-B	4	BOX
FOD815SD	Full Production	 Full Production	\$0.257	SMDIP-B	4	TAPE REEL
FOD815W	Full Production	 Full Production	\$0.257	DIP-B	4	BOX

* Fairchild 1,000 piece Budgetary Pricing

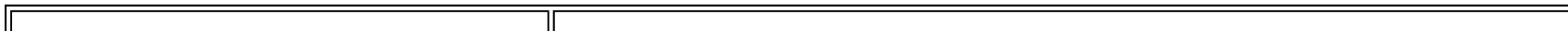
** A sample button will appear if the part is available through Fairchild's on-line samples program. If there is no sample button, please contact a [Fairchild distributor](#) to obtain samples



Indicates product with Pb-free second-level interconnect. For more information [click here](#).

[back to top](#)

Safety agency certificates



Certificate	Agency	
512040 (4502 K)	SEMKO	SEMKO
P05204910 (406 K)	NEMKO	NEMKO
FI 21978 (208 K)	FIMKO	FIMKO
313540-02 (199 K)	DEMKO	DEMKO Testing & Certification
E90700, Vol. 3 (1632 K)	UL (1577)	Underwriters Laboratories Inc.
E90700, Vol. 3 (1632 K)	C-UL	Underwriters Laboratories Inc.
40011272 (334 K)	VDE	VDE Prüf-und Zertifizierungsinstitut

[back to top](#)

Qualification Support

Click on a product for detailed qualification data

Product
FOD815
FOD815300
FOD815300W
FOD8153S
FOD8153SD
FOD815S
FOD815SD
FOD815W

[back to top](#)

© 2007 Fairchild Semiconductor

