

Excellent Integrated System Limited

Stocking Distributor

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[Fairchild Semiconductor](#)
[MOC119](#)

For any questions, you can email us directly:

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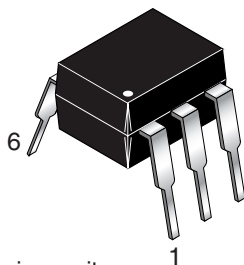
FAIRCHILD
SEMICONDUCTOR™

PHOTODARLINGTON OPTOCOUPLERS (NO BASE CONNECTION)

MOC119

DESCRIPTION

The MOC119 device has a gallium arsenide infrared emitting diode coupled to a silicon darlington phototransistor.

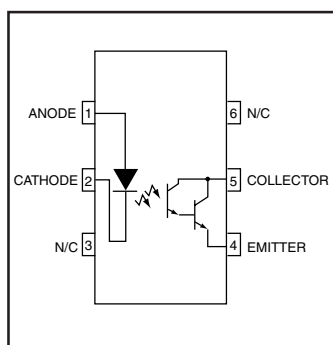


FEATURES

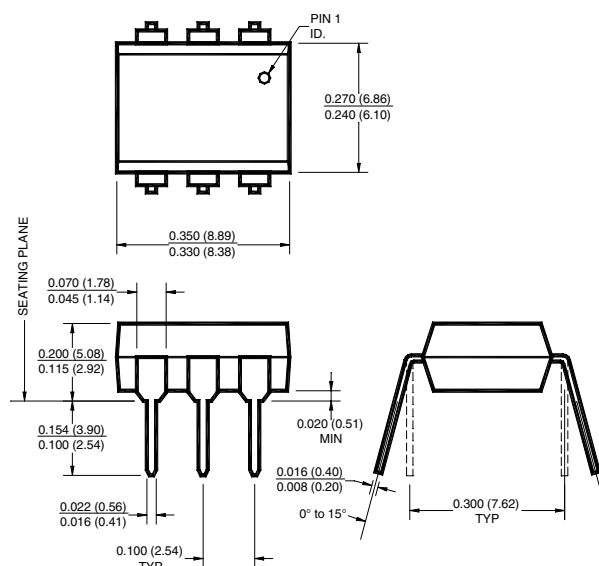
- High current transfer ratio of 300%
- No base connection for improved noise immunity
- Underwriters Laboratory (UL) recognized File# E90700

APPLICATIONS

- Appliances, measuring instruments
- I/O interface for computers
- Programmable controllers
- Portable electronics
- Interfacing and coupling systems of different potentials and impedance
- Solid state relays



PACKAGE DIMENSIONS



NOTE

All dimensions are in inches (millimeters)

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ Unless otherwise specified.)

Parameter	Symbol	Value	Units
TOTAL DEVICE			
Storage Temperature	T _{STG}	-55 to +150	°C
Operating Temperature	T _{OPR}	-55 to +100	°C
Lead Solder Temperature	T _{SOL}	260 for 10 sec	°C
Total Device Power Dissipation @ T _A = 25°C	P _D	250	mW
Derate above 25°C		2.94	mW/°C
Input-Output Isolation Voltage	V _{ISO}	5300	Vac(rms)
EMITTER			
DC/Average Forward Input Current	I _F	60	mA
Reverse Input Voltage	V _R	3	V
LED Power Dissipation @ T _A = 25°C	P _D	120	mW
Derate above 25°C		1.41	mW/°C
DETECTOR			
Collector-Emitter Voltage	V _{CEO}	30	V
Emitter-Collector Voltage	V _{ECO}	7	V
Detector Power Dissipation @ T _A = 25°C	P _D	150	mW
Derate above 25°C		1.76	mW/°C
Continuous Collector Current	I _C	150	mA

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ELECTRICAL CHARACTERISTICS (T_A = 25°C Unless otherwise specified.)

INDIVIDUAL COMPONENT CHARACTERISTICS

Parameter	Test Conditions	Symbol	Min	Typ**	Max	Unit
EMITTER						
Input Forward Voltage	(I _F = 10 mA)	V _F		1.15	1.5	V
Input Capacitance	(V _R = 0, f = 1 MHz)	C _{IN}		18		pF
Reverse Leakage Current	(V _R = 3.0 V)	I _R		0.05	100	μA
DETECTOR						
Collector-Emitter Breakdown Voltage	(I _C = 100 μA)	BV _{CEO}	30			V
Emitter-Collector Breakdown Voltage	(I _E = 10 μA)	BV _{ECO}	7			V
Collector-Emitter Dark Current	(V _{CE} = 10 V)	I _{CEO}			100	nA

TRANSFER CHARACTERISTICS

DC Characteristic	Test Conditions	Symbol	Min	Typ**	Max	Units
Current Transfer Ratio,	(I _F = 10 mA, V _{CE} = 2 V)	CTR	30 (300)	45 (450)		mA (%)

TRANSFER CHARACTERISTICS

Characteristic	Test Conditions	Symbol	Min	Typ**	Max	Units
SWITCHING TIMES						
Turn-on Time	(V _{CE} = 10 V, R _L = 100Ω, I _F = 5 mA)	t _{on}		3.5		μs
Turn-off Time		t _{off}		95		μs

ISOLATION CHARACTERISTICS

Characteristic	Test Conditions	Symbol	Min	Typ**	Max	Units
Input-Output Isolation Voltage	(I _{I-O} ≤ 1 μA, 1 min.)	V _{ISO}	7500			Vac(pk)
	(I _{I-O} ≤ 1 μA, 1 min.)		5300			Vac(rms)
Isolation Resistance	(V _{I-O} = 500 VDC)	R _{ISO}		10 ¹¹		Ω
Isolation Capacitance	(V = 0 V, f = 1 MHz)	C _{ISO}		0.2		pf
Collector - Emitter Saturation Voltage	(I _C = 10 mA, I _F = 10 mA)	V _{CE (SAT)}			1	V

Note

** Typical values at T_A = 25°C

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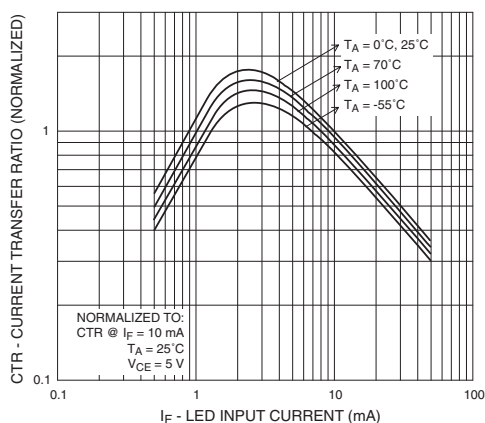


Fig. 1 Output Current vs. Input Current

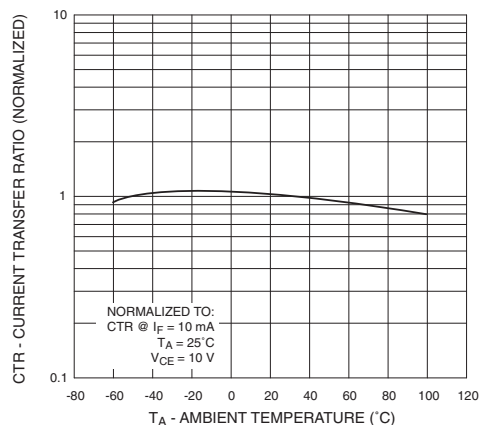


Fig. 2 Current Transfer Ratio vs. Ambient Temperature

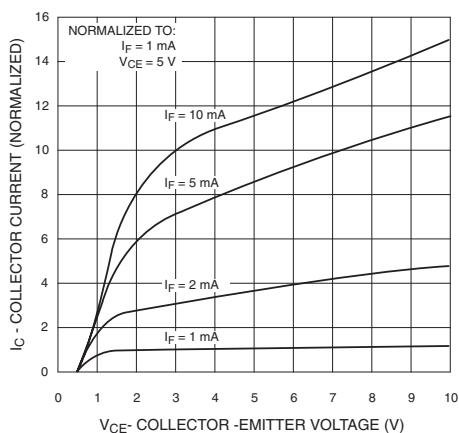


Fig. 3 Collector Current vs. Collector-Emitter Voltage

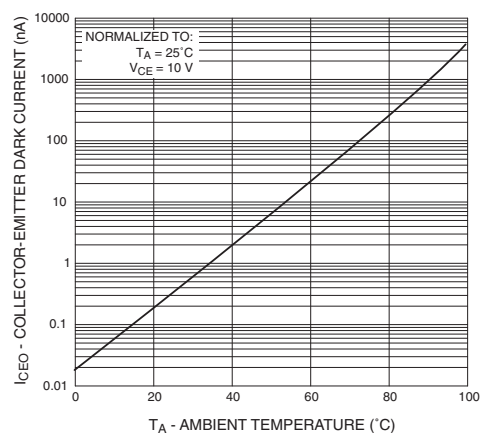


Fig. 4 Dark Current vs. Ambient Temperature

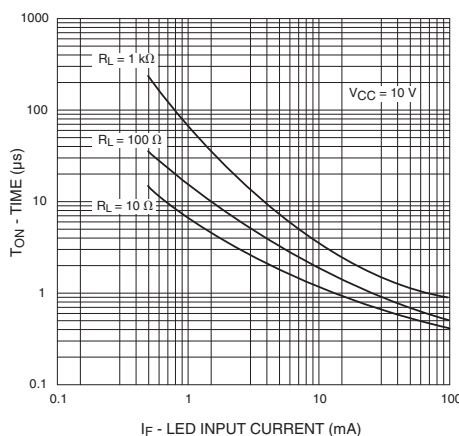


Fig. 5 Turn-On Time vs. Input Current

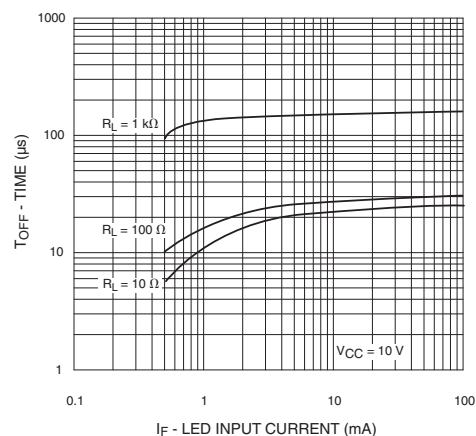


Fig. 6 Turn-Off Time vs. Input Current

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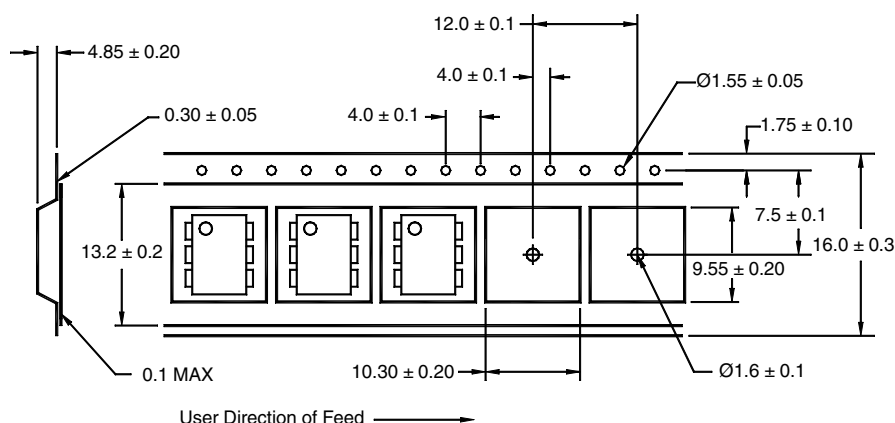
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ORDERING INFORMATION

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 0884
300W	.300W	VDE 0884, 0.4" Lead Spacing
3S	.3S	VDE 0884, Surface Mount
3SD	.3SD	VDE 0884, Surface Mount, Tape & Reel

QT Carrier Tape Specifications ("D" Taping Orientation)





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2. A critical component in any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.