

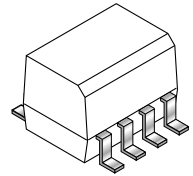
MOCD206M

MOCD207M

MOCD208M

DESCRIPTION

The MOCD206M/MOCD207M/MOCD208M consist of two silicon phototransistors optically coupled to two GaAs infrared LEDs. These devices are constructed in a small outline surface mount package which conforms to the standard SOIC-8 footprint.

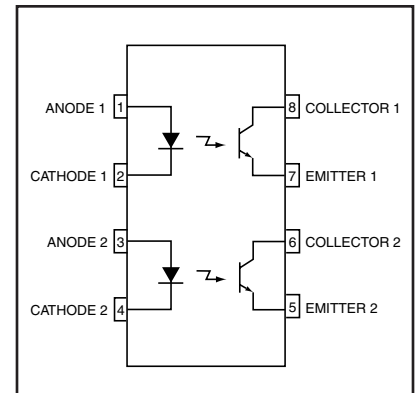


FEATURES

- Dual Channel Optocoupler
- Convenient Plastic SOIC-8 Surface Mountable Package Style
- Two channels in one compact surface mount package
- Closely Matched Current Transfer Ratios to Minimize Unit-to-Unit Variation
- Minimum $V_{(BR)CEO}$ of 70 Volts Guaranteed
- Standard SOIC-8 Footprint, with 0.050" Lead Spacing
- Compatible with Dual Wave, Vapor Phase and IR Reflow Soldering
- High Input-Output Isolation of 2500 Vac (rms) Guaranteed
- Meets U.L. Regulatory Requirements, File #E90700, Volume 2

APPLICATIONS

- Feedback control circuits
- Interfacing and coupling systems of different potentials and impedances
- General purpose switching circuits
- Monitor and detection circuits



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ Unless otherwise specified)			
Rating	Symbol	Value	Unit
EMITTER			
Forward Current - Continuous	I_F	60	mA
Forward Current - Peak (PW = 100 μs , 120 pps)	I_F (pk)	1.0	A
Reverse Voltage	V_R	6.0	V
LED Power Dissipation @ $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	90 0.8	mW mW/ $^\circ\text{C}$
DETECTOR			
Collector-Emitter Voltage	V_{CEO}	70	V
Collector-Base Voltage	V_{CBO}	70	V
Emitter-Collector Voltage	V_{ECO}	7.0	V
Collector Current-Continuous	I_C	150	mA
Detector Power Dissipation @ $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	150 1.76	mW mW/ $^\circ\text{C}$
TOTAL DEVICE			
Input-Output Isolation Voltage ^(1, 2) (f = 60 Hz, 1 min. Duration)	V_{ISO}	2500	Vac(rms)
Total Device Power Dissipation @ $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	250 2.94	mW mW/ $^\circ\text{C}$
Ambient Operating Temperature Range	T_A	-40 to +100	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-40 to +125	$^\circ\text{C}$
Lead Soldering Temperature (1/16" from case, 10 sec. duration)	T_L	260	$^\circ\text{C}$

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ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise specified) ⁽³⁾							
Parameter	Test Conditions	Symbol	Device	Min	Typ**	Max	Unit
EMITTER							
Input Forward Voltage	$I_F = 30\text{ mA}$	V_F	All	—	1.25	1.55	V
Reverse Leakage Current	$V_R = 6.0\text{ V}$	I_R	All	—	0.001	100	μA
Capacitance		C	All	—	18	—	pF
DETECTOR							
Collector-Emitter Dark Current	$V_{CE} = 10\text{ V}, T_A = 25^\circ\text{C}$	I_{CEO}	All	—	1.0	50	nA
	$V_{CE} = 10\text{ V}, T_A = 100^\circ\text{C}$	I_{CEO}	All	—	1.0	—	μA
Collector-Emitter Breakdown Voltage	$I_C = 100\ \mu\text{A}$	$V_{(BR)CEO}$	All	70	100	—	V
Emitter-Collector Breakdown Voltage	$I_E = 100\ \mu\text{A}$	$V_{(BR)CEO}$	All	7.0	10	—	V
Collector-Emitter Capacitance	$f = 1.0\text{ MHz}, V_{CE} = 0\text{ V}$	C_{CE}	All	—	7.0	—	pF
COUPLED							
Current Transfer Ratio, Collector to Emitter ⁽⁴⁾	$I_F = 10\text{ mA}, V_{CE} = 5\text{ V}$	CTR	MOCD206M	63	—	125	%
			MOCD207M	100	150	200	
			MOCD208M	40	—	125	
	$I_F = 1\text{ mA}, V_{CE} = 5\text{ V}$		MOCD206M	22	—	—	
			MOCD207M	34	—	—	
			MOCD208M	13	—	—	
Collector-Emitter Saturation Voltage	$I_C = 2.0\text{ mA}, I_F = 1.0\text{ mA}$	$V_{CE(sat)}$	All	—	—	0.4	V
Turn-On Time	$I_C = 2.0\text{ mA}, V_{CC} = 10\text{ V}, R_L = 100\ \Omega$	t_{on}	All	—	3.0	—	μs
Turn-Off Time	$I_C = 2.0\text{ mA}, V_{CC} = 10\text{ V}, R_L = 100\ \Omega$	t_{off}	All	—	2.8	—	μs
Rise Time	$I_C = 2.0\text{ mA}, V_{CC} = 10\text{ V}, R_L = 100\ \Omega$	t_r	All	—	1.6	—	μs
Fall Time	$I_C = 2.0\text{ mA}, V_{CC} = 10\text{ V}, R_L = 100\ \Omega$	t_f	All	—	2.2	—	μs
Isolation Surge Voltage ^(1, 2)	$f = 60\text{ Hz}, t = 1\text{ min.}$	V_{ISO}	All	2500	—	—	Vac(rms)
Isolation Resistance ⁽²⁾	$V_{I-O} = 500\text{ V}$	R_{ISO}	All	10^{11}	—	—	Ω
Isolation Capacitance ⁽²⁾	$V_{I-O} = 0\text{ V}, f = 1\text{ MHz}$	C_{ISO}	All	—	0.2	—	pF

** Typical values at $T_A = 25^\circ\text{C}$

NOTE:

1. Input-Output Isolation Voltage, V_{ISO} , is an internal device dielectric breakdown rating.
2. For this test, Pins 1, 2, 3 and 4 are common and Pins 5, 6, 7 and 8 are common.
3. Always design to the specified minimum/maximum electrical limits (where applicable).
4. Current Transfer Ratio (CTR) = $I_C/I_F \times 100\%$.

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Fig. 1 LED Forward Voltage vs. Forward Current

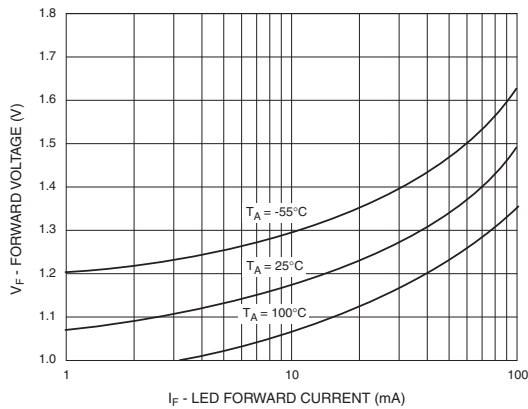


Fig. 2 Output Current vs. Input Current

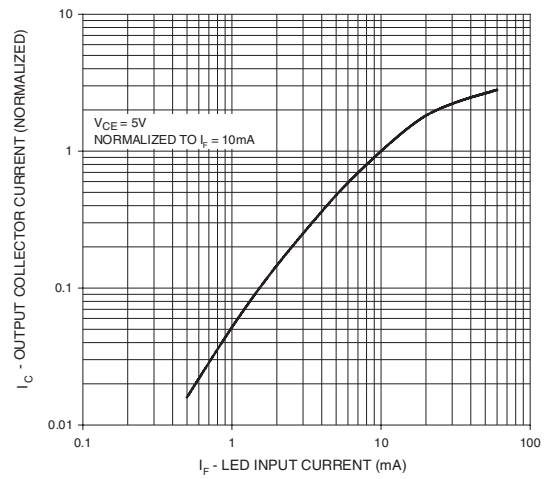


Fig. 3 Output Current vs. Ambient Temperature

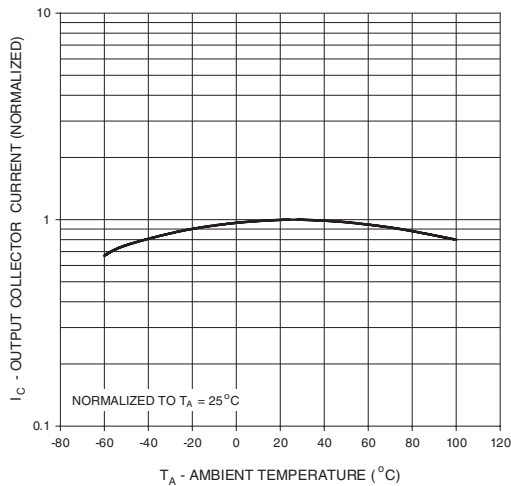


Fig. 4 Output Current vs. Collector - Emitter Voltage

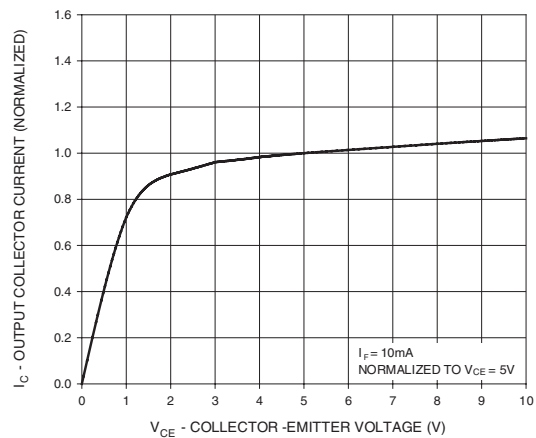
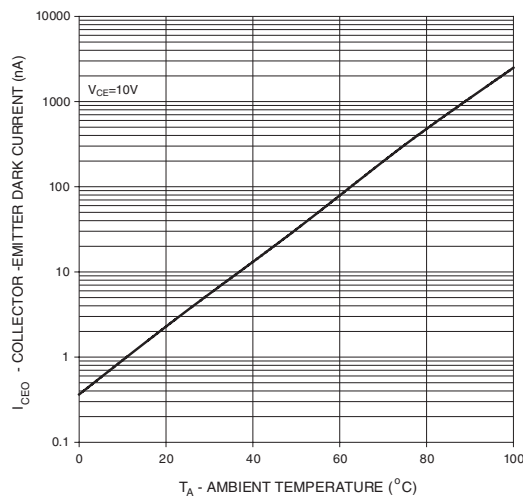


Fig. 5 Dark Current vs. Ambient Temperature

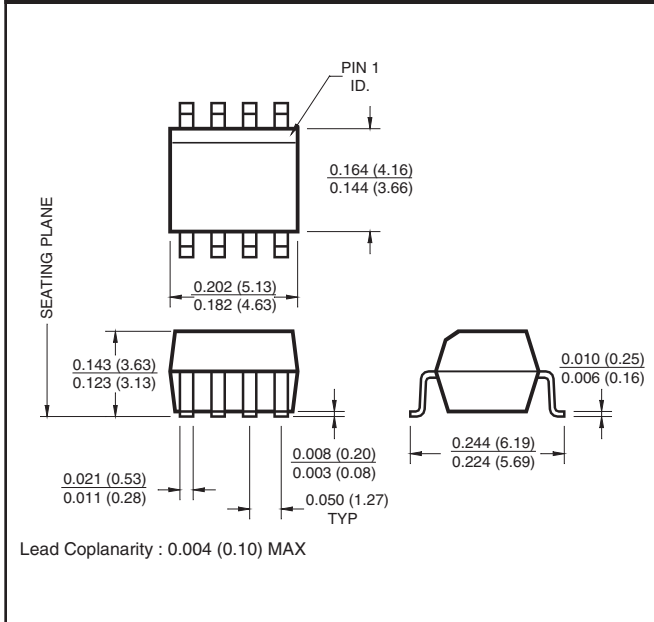


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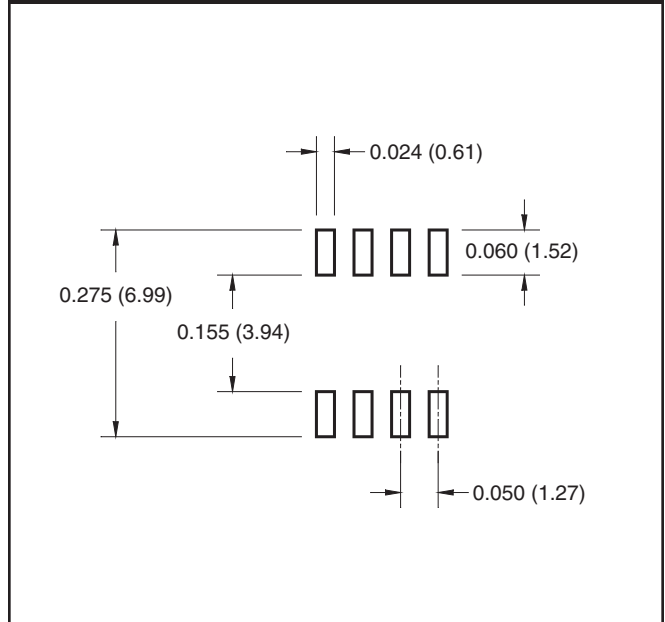
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Package Dimensions (Surface Mount)



8-Pin Small Outline



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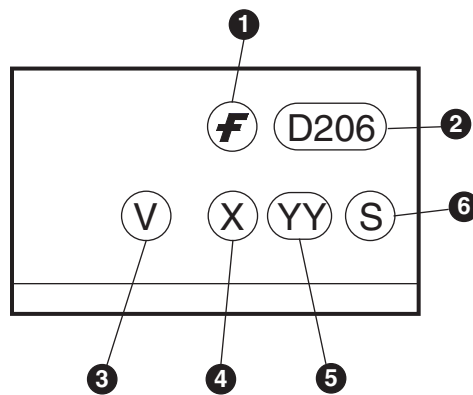
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ORDERING INFORMATION

Option	Order Entry Identifier	Description
R1	R1	Tape and reel (500 units per reel)
R2	R2	Tape and reel (2500 units per reel)

MARKING INFORMATION



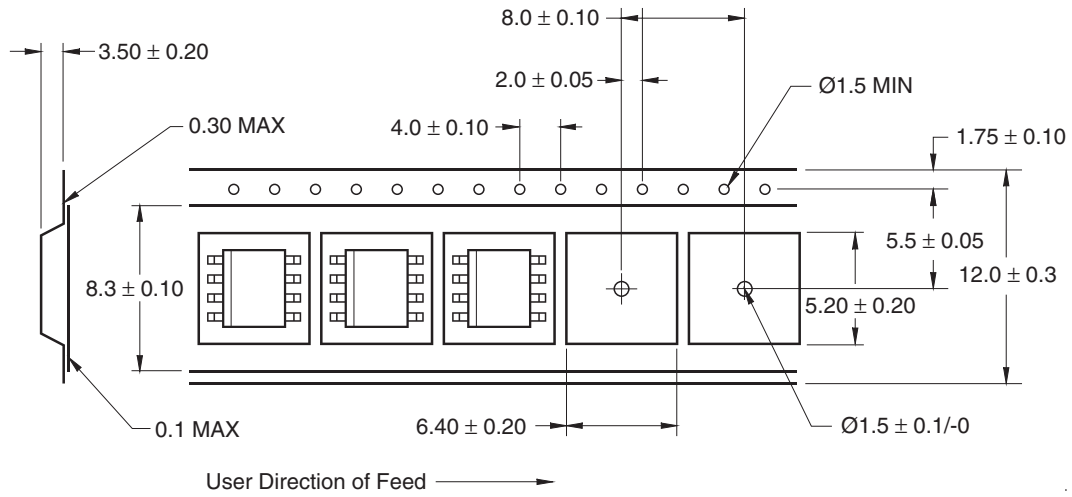
Definitions	
1	Fairchild logo
2	Device number
3	VDE mark (Note: Only appears on parts ordered with VDE option – See order entry table)
4	One digit year code, e.g., '3'
5	Two digit work week ranging from '01' to '53'
6	Assembly package code

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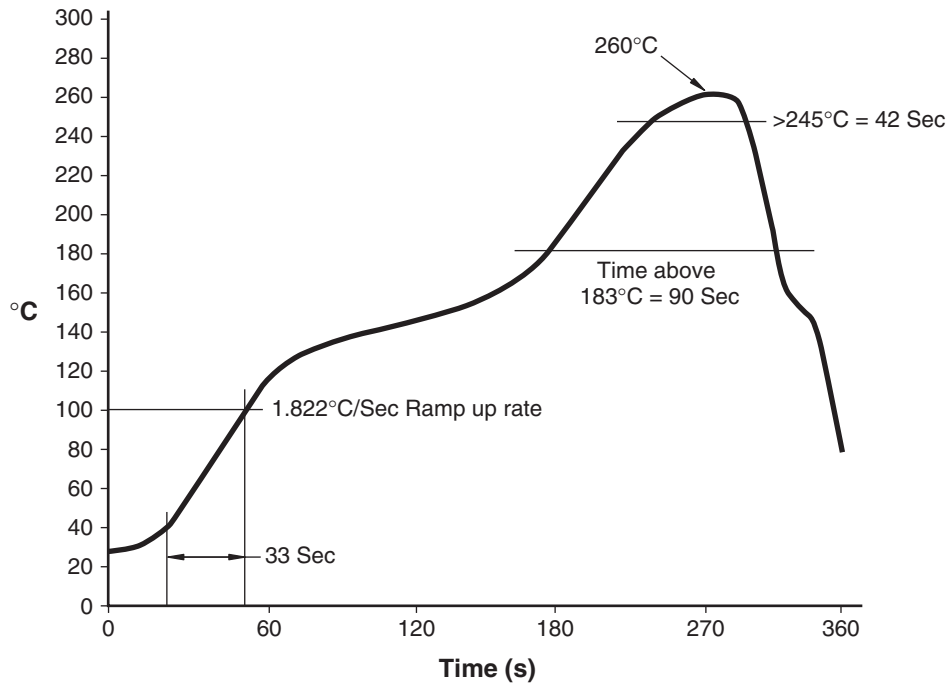
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Carrier Tape Specifications



Reflow Profile



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