



## MOCD207

### DESCRIPTION

The MOCD207 is a dual channel optically coupled isolator each channel consists of an infrared light emitting diode and a NPN silicon photo transistor in a space efficient dual in line plastic package.

It belongs to Isocom Compact Range of optocouplers

### FEATURES

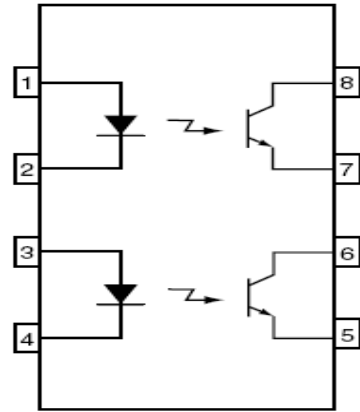
- Half Pitch 1.27mm
- High AC Isolation Voltage 3750V<sub>RMS</sub>
- Wide Operating Temperature Range -55°C to +110°C
- Lead Free and RoHS Compliant
- UL Approval File E91231

### APPLICATIONS

- Feedback Control Circuits
- Interfacing and Coupling Systems of Different Potentials and Impedances
- General Purpose Switching Circuits
- Monitor and Detection Circuits

### ORDER INFORMATION

- Available in Tape and Reel with 2000pcs per reel



### ABSOLUTE MAXIMUM RATINGS (T<sub>A</sub> = 25°C)

#### Input Diode

Forward Current	60mA
Peak Forward Current (t = 10µs)	1A
Reverse Voltage	6V
Power dissipation	90mW

#### Output Transistor

Collector to Emitter Voltage BV <sub>CEO</sub>	80V
Collector to Base Voltage BV <sub>CBO</sub>	80V
Emitter to Collector Voltage BV <sub>ECO</sub>	7V
Collector Current	50mA
Power Dissipation	150mW

#### Total Package

Operating Temperature	-55 to +110 °C
Storage Temperature	-55 to +125 °C
Total Power Dissipation	250mW
Isolation Voltage (1 minute, R.H. = 40% - 60%, pins 1, 2, 3, 4 Shorted, pins 5, 6, 7, 8 shorted)	3750V <sub>RMS</sub>
Lead Soldering Temperature (10s)	260°C

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### ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ unless otherwise specified)

#### INPUT

Parameter	Symbol	Test Condition	Min	Typ.*	Max	Unit
Forward Voltage	$V_F$	$I_F = 10\text{mA}$		1.2	1.5	V
Reverse Leakage	$I_R$	$V_R = 6\text{V}$		0.1	100	$\mu\text{A}$
Input Capacitance	$C_{in}$	$V = 0\text{V}, f = 1\text{MHz}$		25		pF

#### OUTPUT

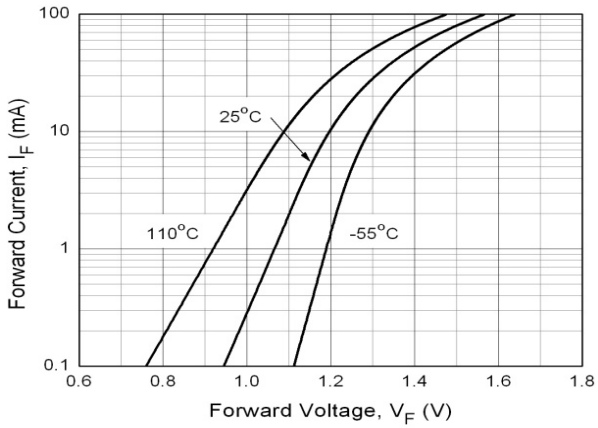
Parameter	Symbol	Test Condition	Min	Typ.*	Max	Unit
Collector—Emitter breakdown Voltage	$BV_{CEO}$	$I_C = 0.1\text{mA}, I_F = 0\text{mA}$	80			V
Emitter—Collector breakdown Voltage	$BV_{ECO}$	$I_E = 0.1\text{mA}, I_F = 0\text{mA}$	7			V
Collector-Emitter Dark Current	$I_{CEO}$	$V_{CE} = 10\text{V}, I_F = 0\text{mA}$		5.0	50	nA

#### COUPLED

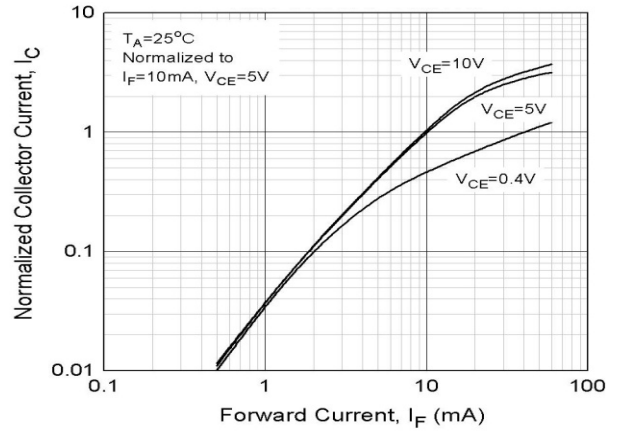
Parameter	Symbol	Test Condition	Min	Typ.*	Max	Unit
Current Transfer Ratio	CTR	$I_F = 10\text{mA}, V_{CE} = 5\text{V}$	100		200	%
		$I_F = 1\text{mA}, V_{CE} = 5\text{V}$	34	70		
Collector—Emitter Saturation Voltage	$V_{CE(sat)}$	$I_F = 10\text{mA}, I_C = 2.5\text{mA}$			0.4	V
Input to Output Isolation Resistance	$R_{ISO}$	$V_{IO} = 500\text{V}$ Note 1		$10^{11}$		$\Omega$
Turn-On Time	$t_{on}$	$V_{CE} = 10\text{V},$ $I_C = 2\text{mA},$ $R_L = 100\Omega$		5.0		$\mu\text{s}$
Turn-Off Time	$t_{off}$			4.0		
Rise Time	$t_r$			1.6		
Fall Time	$t_f$			2.2		

Note 1 : Measured with input leads shorted together and output leads shorted together, R.H 40% to 60%.

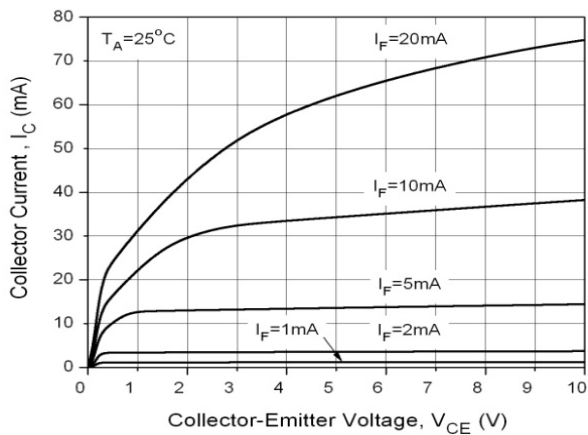
\* Typical values at  $T_A = 25^\circ\text{C}$



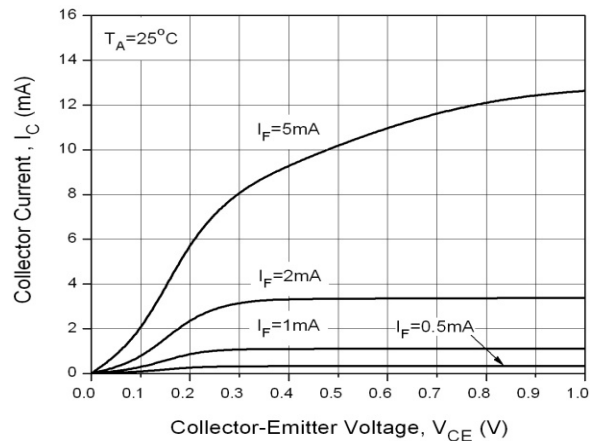
**Fig 1 Forward Current vs Forward Voltage**



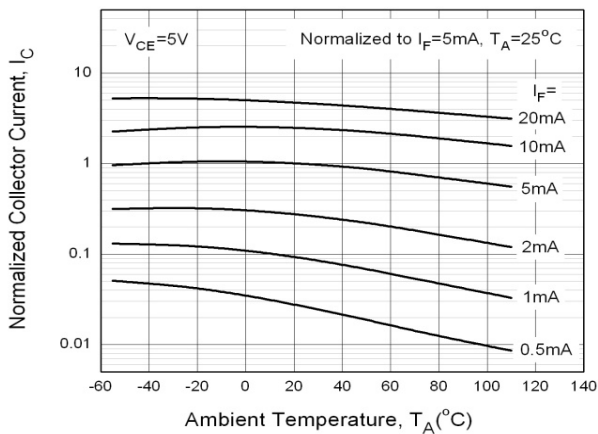
**Fig 2 Normalized Collector Current vs Forward Current**



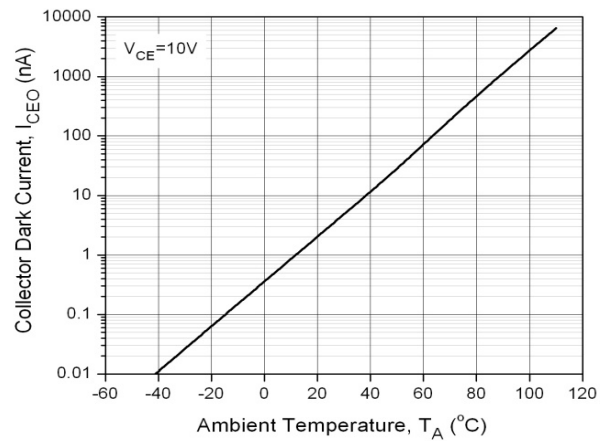
**Fig 3 Collector Current vs Collector-emitter Voltage (1)**



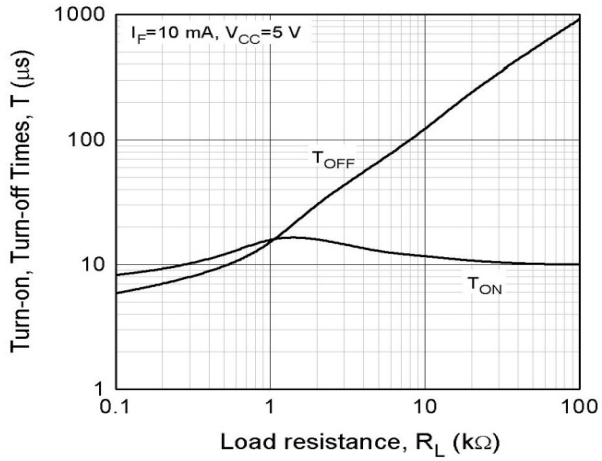
**Fig 4 Collector Current vs Collector-emitter Voltage (2)**



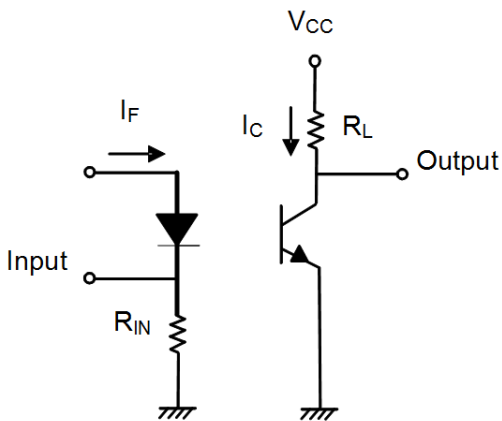
**Fig 5 Normalized Collector Current vs  $T_A$**



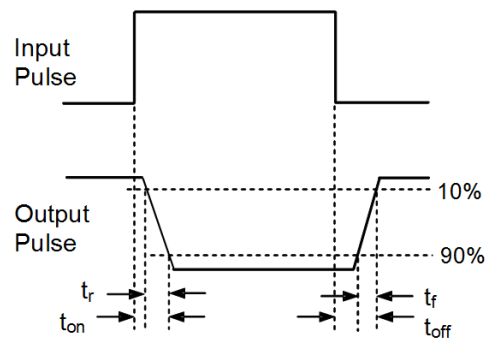
**Fig 6 Collector Dark Current vs  $T_A$**



**Fig 7 Turn-On and Turn-Off Time vs Load Resistance**



**Fig 8 Switching Time Test Circuit**



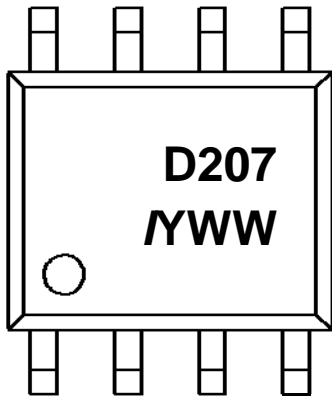


## MOCD207

### ORDER INFORMATION

MOCD207			
After PN	PN	Description	Packing quantity
None	MOCD207	Surface Mount Tape & Reel	2000 pcs per reel

### DEVICE MARKING

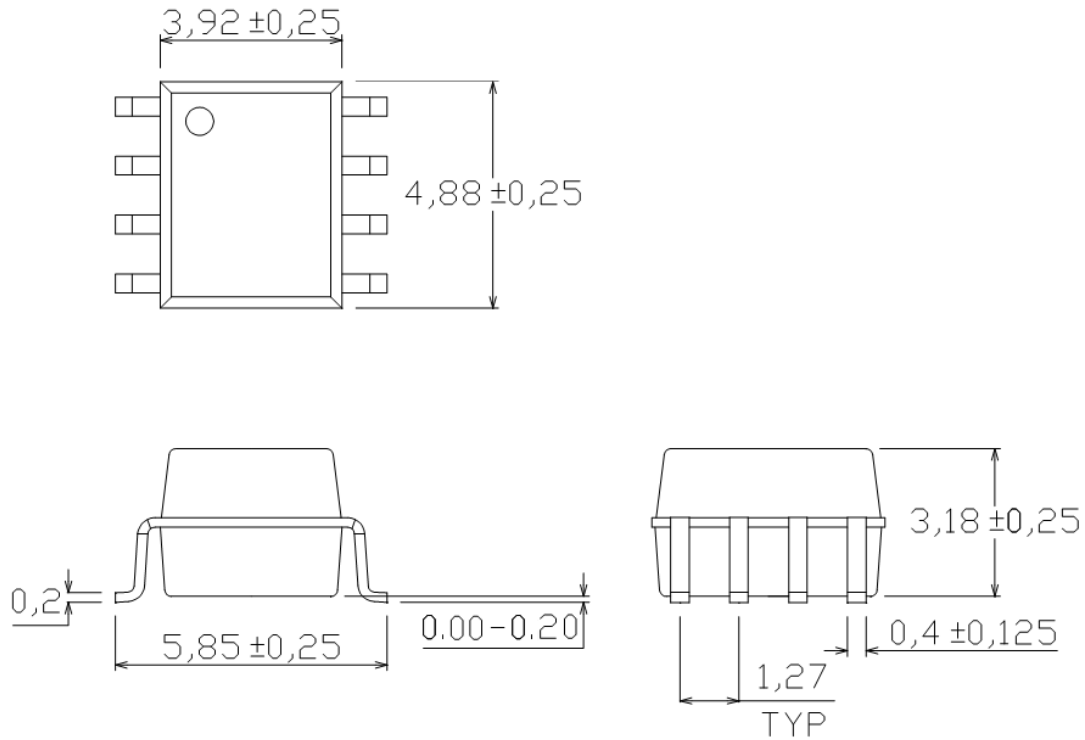


D207 denotes Device Part Number  
I denotes Isocom  
Y denotes 1 digit Year code  
WW denotes 2 digit Week code

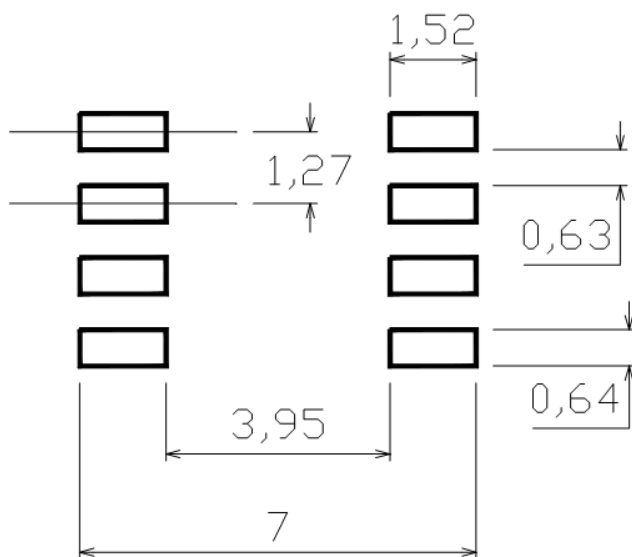


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### PACKAGE DIMENSIONS (mm)



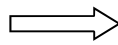
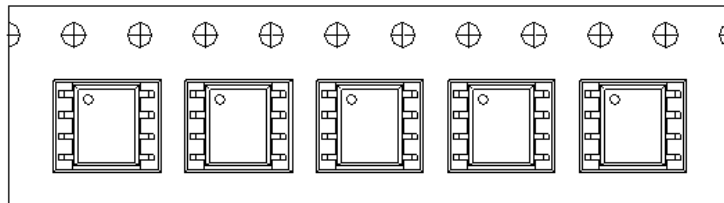
### RECOMMENDED PAD LAYOUT (mm)



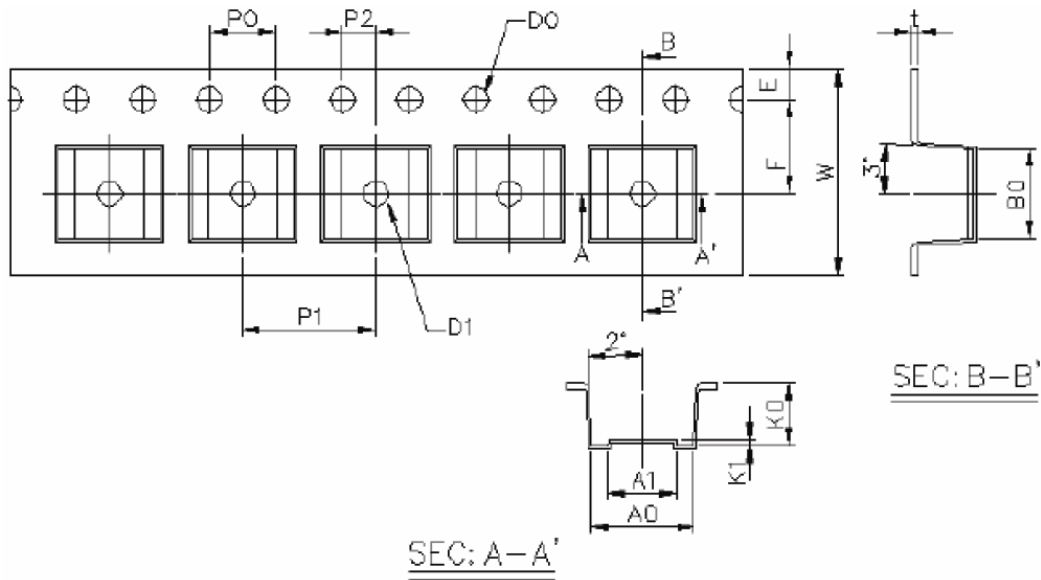


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**TAPE AND REEL PACKAGING**



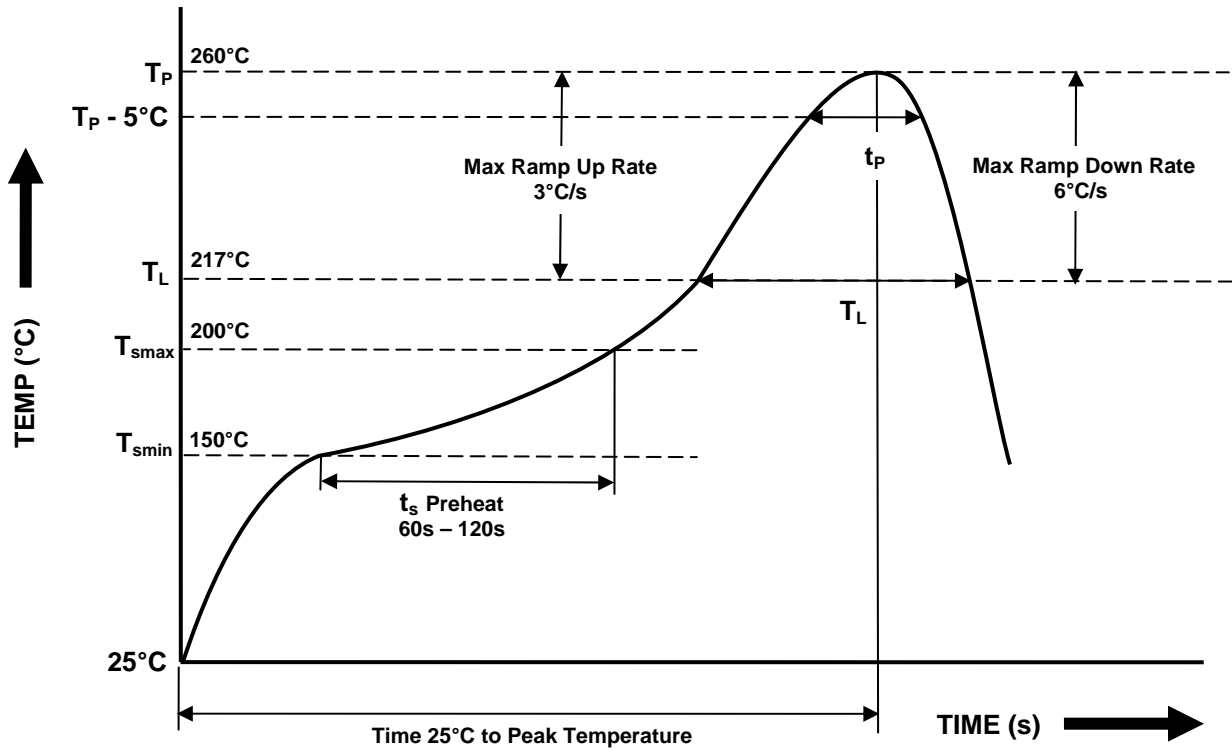
Direction of feed from reel



Dimension No.	<b>A0</b>	<b>A1</b>	<b>B0</b>	<b>D0</b>	<b>D1</b>	<b>E</b>	<b>F</b>
Dimension (mm)	6.2±0.1	4.1±0.1	5.28±0.1	1.5±0.1	1.5±0.3	1.75±0.1	5.5±0.1
Dimension No.	<b>Po</b>	<b>P1</b>	<b>P2</b>	<b>t</b>	<b>W</b>	<b>K0</b>	<b>K1</b>
Dimension (mm)	4.0±0.1	8.0±0.1	2.0±0.1	0.4±0.1	12.0 +0.3/-0.1	3.7±0.1	0.3±0.1



**IR REFLOW SOLDERING TEMPERATURE PROFILE FOR SMD**  
(One Time Reflow Soldering is Recommended)



Profile Details	Conditions
<b>Preheat</b> <ul style="list-style-type: none"> <li>- Min Temperature (T<sub>SMIN</sub>)</li> <li>- Max Temperature (T<sub>SMAX</sub>)</li> <li>- Time T<sub>SMIN</sub> to T<sub>SMAX</sub> (t<sub>s</sub>)</li> </ul>	150°C 200°C 60s - 120s
<b>Soldering Zone</b> <ul style="list-style-type: none"> <li>- Peak Temperature (T<sub>P</sub>)</li> <li>- Liquidous Temperature (T<sub>L</sub>)</li> <li>- Time within 5°C of Actual Peak Temperature (T<sub>P</sub> - 5°C)</li> <li>- Time maintained above T<sub>L</sub> (t<sub>L</sub>)</li> <li>- Ramp Up Rate (T<sub>L</sub> to T<sub>P</sub>)</li> <li>- Ramp Down Rate (T<sub>P</sub> to T<sub>L</sub>)</li> </ul>	260°C 217°C 30s 60s 3°C/s max 6°C/s max
Average Ramp Up Rate (T <sub>smax</sub> to T <sub>P</sub> )	3°C/s max
Time 25°C to Peak Temperature	8 minutes max





