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

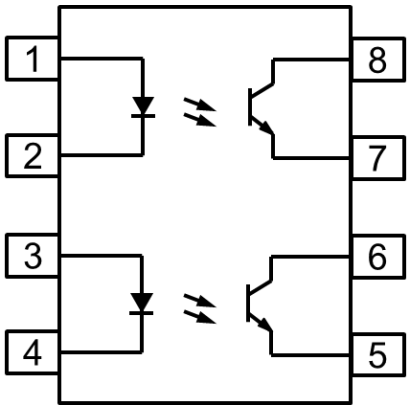
- Half Pitch 1.27mm
- High AC Isolation Voltage 3750V_{RMS}
- Wide Operating Temperature Range -55°C to +110°C
- Lead Free and RoHS Compliant
- UL Approval File E91231

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



1, 3	Anode	5, 7	Emitter
2, 4	Cathode	6, 8	Collector

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C)

Stresses exceeding the absolute maximum ratings can cause permanent damage to the device.
Exposure to absolute maximum ratings for long periods of time can adversely affect reliability.

Input	
Forward Current	60mA
Pulse Forward Current (t = 10µs)	1A
Reverse Voltage	6V
Power dissipation	90mW
Output	
Output Current	50mA
Collector to Emitter Voltage BV_{CEO}	80V
Emitter to Collector Voltage BV_{CBO}	80V
Emitter to Collector Voltage BV_{ECO}	7V
Power Dissipation	150mW
Total Package	
Isolation Voltage	3750V_{RMS}
Total Power Dissipation	250mW
Operating Temperature	−55 to 110°C
Storage Temperature	−55 to 125°C
Lead Soldering Temperature (10s)	260°C

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ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise specified)

INPUT

Parameter	Symbol	Test Condition	Min	*Typ.	Max	Unit
Forward Voltage	V_F	I_F = 10mA		1.2	1.5	V
Reverse Current	I_R	V_R = 6V		0.1	100	µA
Input Capacitance	C_{IN}	V_F = 0V, f = 1MHz		25		pF

OUTPUT

Parameter	Symbol	Test Condition	Min	*Typ.	Max	Unit
Collector-Emitter Breakdown Voltage	BV_{CEO}	I_F = 0mA, I_C = 0.1mA	80			V
Emitter-Collector Breakdown Voltage	BV_{ECO}	I_F = 0mA, I_E = 0.1mA	7			V
Collector-Emitter Dark Current	I_{CEO}	I_F = 0mA, V_{CE} = 10V		5.0	50	nA
Collector-Emitter Capacitance	C_{CE}	V_{CE} = 0V, f = 1MHz		10		pF

COUPLED

Parameter	Symbol	Test Condition	Min	*Typ.	Max	Unit
Current Transfer Ratio	CTR	I_F = 10mA, V_{CE} = 5V	100		200	%
		I_F = 1mA, V_{CE} = 5V	34	70		
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	I_F = 10mA, I_C = 2.5mA			0.4	V
Input-Output Capacitance	C_{IO}	V_{IO} = 0V, f = 1MHz		0.5		pF
Turn-On Time	t_{ON}	V_{CC} = 10V Ic = 2mA R_L = 100Ω		5		µs
Turn-Off Time	t_{OFF}			4		
Output Rise Time	t_r			1.6		
Output Fall Time	t_f			2.2		

ISOLATION

Parameter	Symbol	Test Condition	Min	*Typ.	Max	Unit
Input to Output Isolation Voltage	V_{ISO}	RH = 40% - 60%, t = 1 min Note 1	3750			V_{RMS}
Input to Output Isolation Resistance	R_{ISO}	V_{IO}= 500V Note 1		10^{11}		Ω

Note 1 : Measured with input leads 1, 2, 3, 4 shorted together and output leads 5, 6, 7, 8 shorted together.

* Typical values at T_A = 25°C

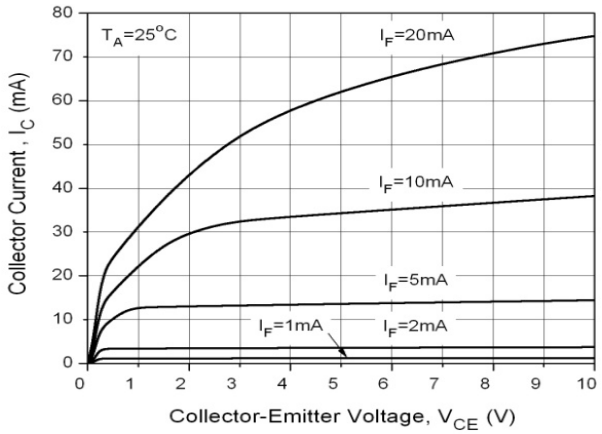


Fig 1 Collector Current vs Collector-emitter Voltage (1)

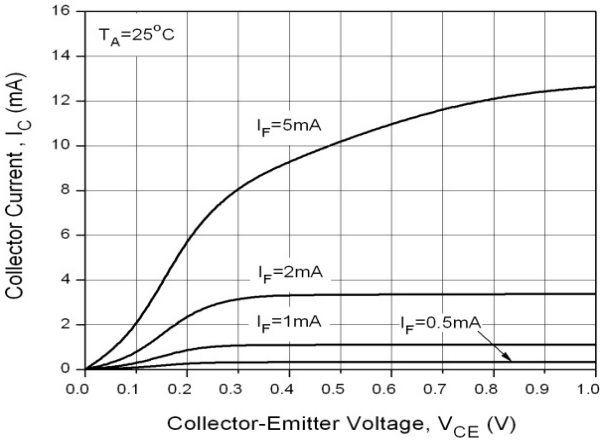


Fig 2 Collector Current vs Collector-emitter Voltage (2)

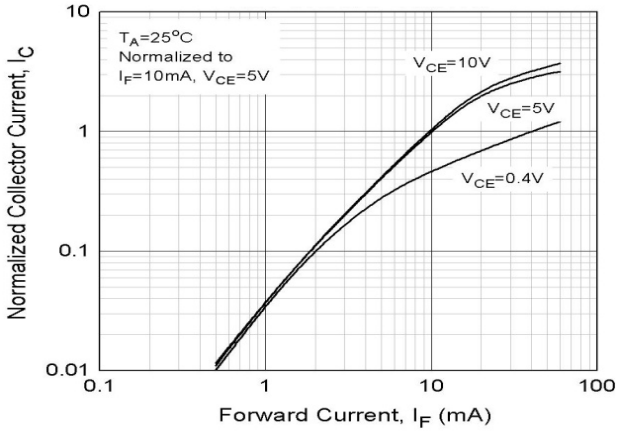


Fig 3 Normalized Collector Current vs Forward Current

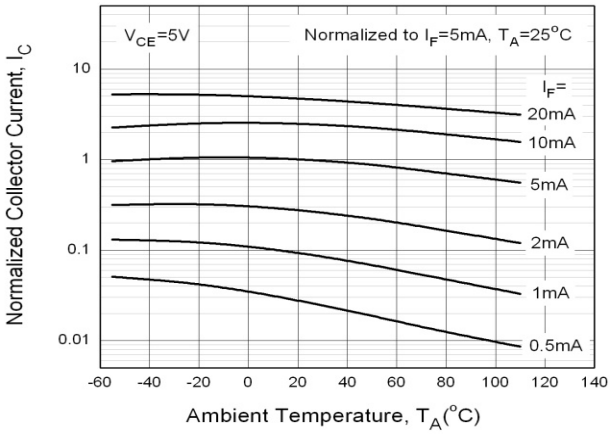


Fig 4 Normalized Collector Current vs T_A

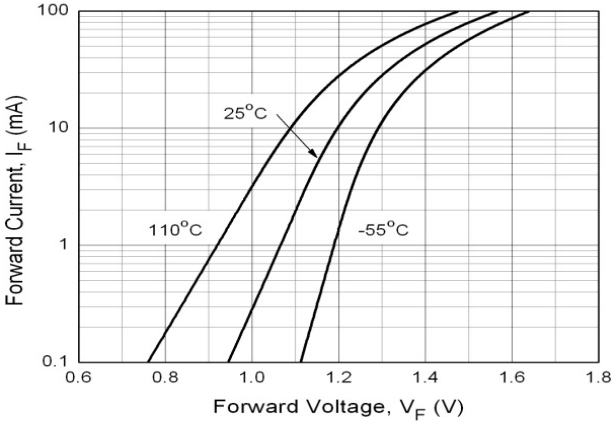


Fig 5 Forward Current vs Forward Voltage

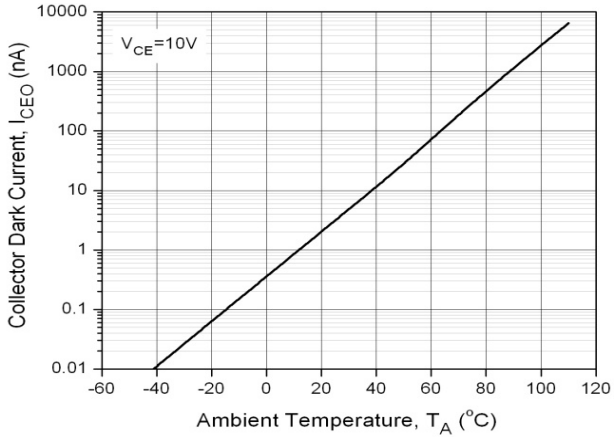


Fig 6 Collector Dark Current vs T_A

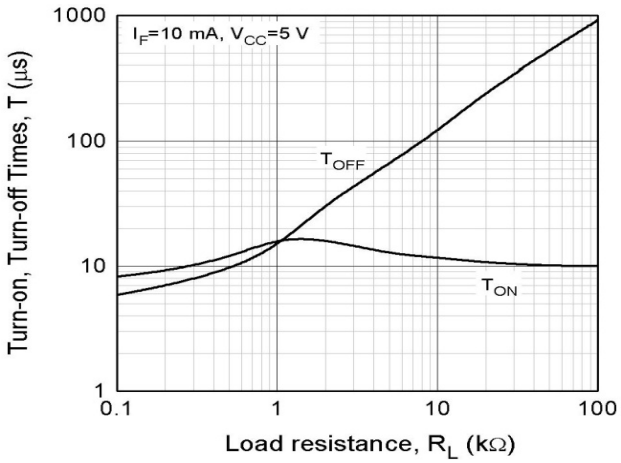
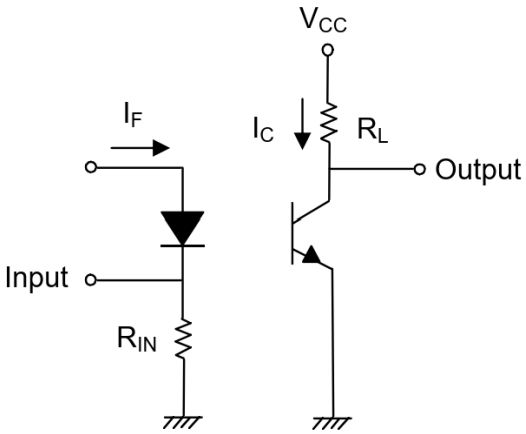
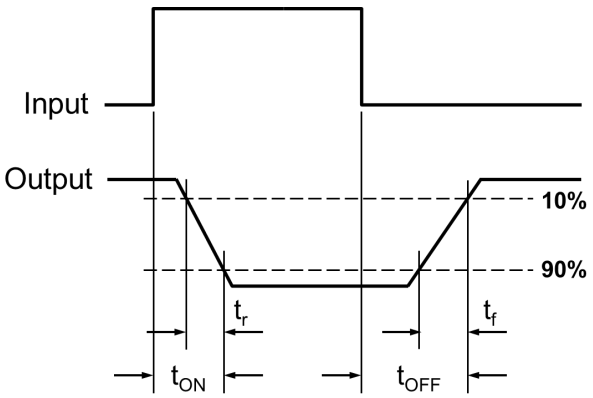


Fig 7 Turn-On and Turn-Off Times vs Load Resistance



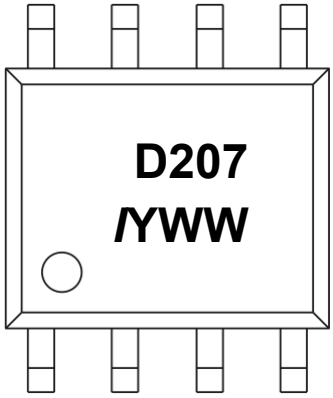


Switching Time Test Circuit and Waveforms

ORDER INFORMATION

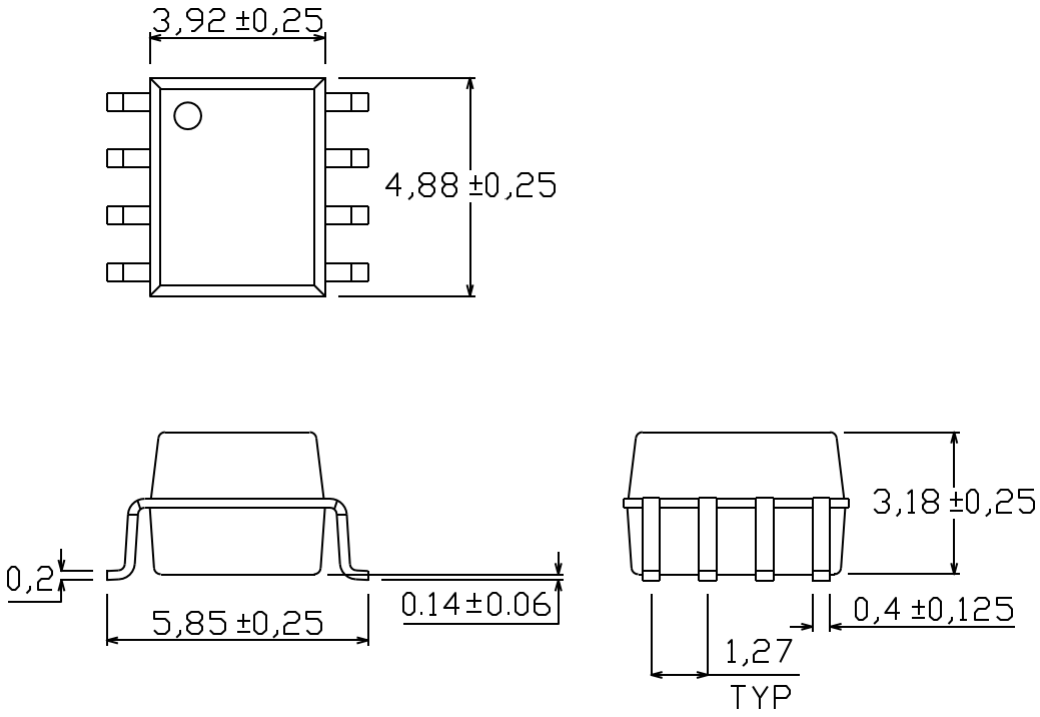
MOCD207			
After PN	**PN**	**Description**	**Packing quantity**
None	MOCD207	Surface Mount Tape & Reel	2000 pcs per reel

DEVICE MARKING

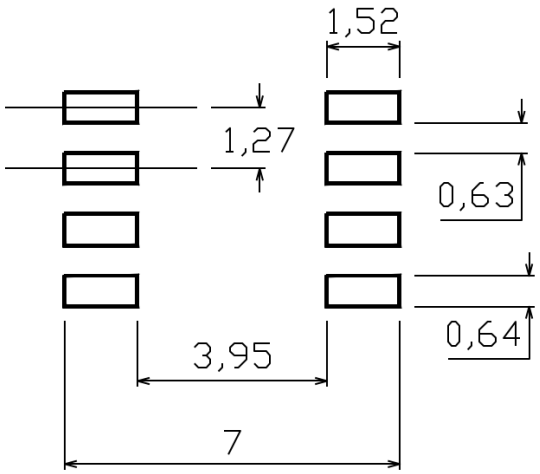


D207	denotes Device Part Number
I	denotes Isocom
Y	denotes 1 digit Year code
WW	denotes 2 digit Week code

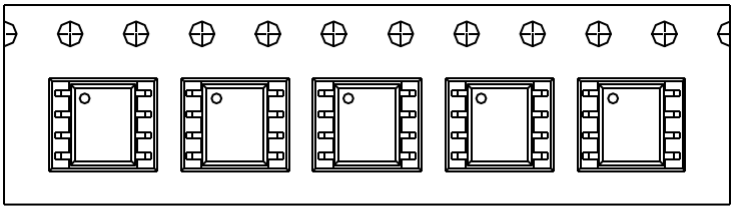
PACKAGE DIMENSIONS (mm)

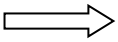


RECOMMENDED PAD LAYOUT (mm)

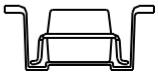


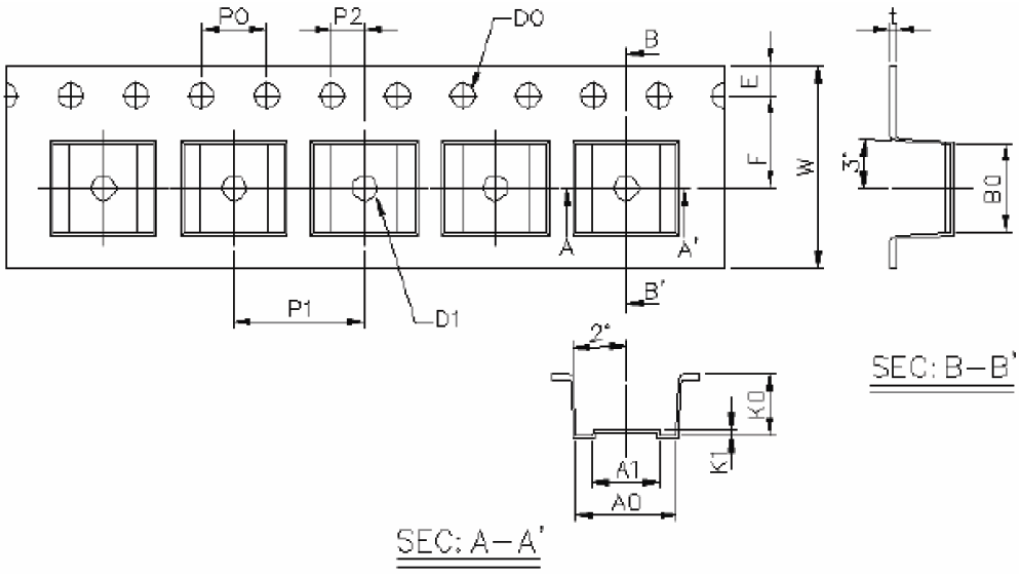
TAPE AND REEL PACKAGING





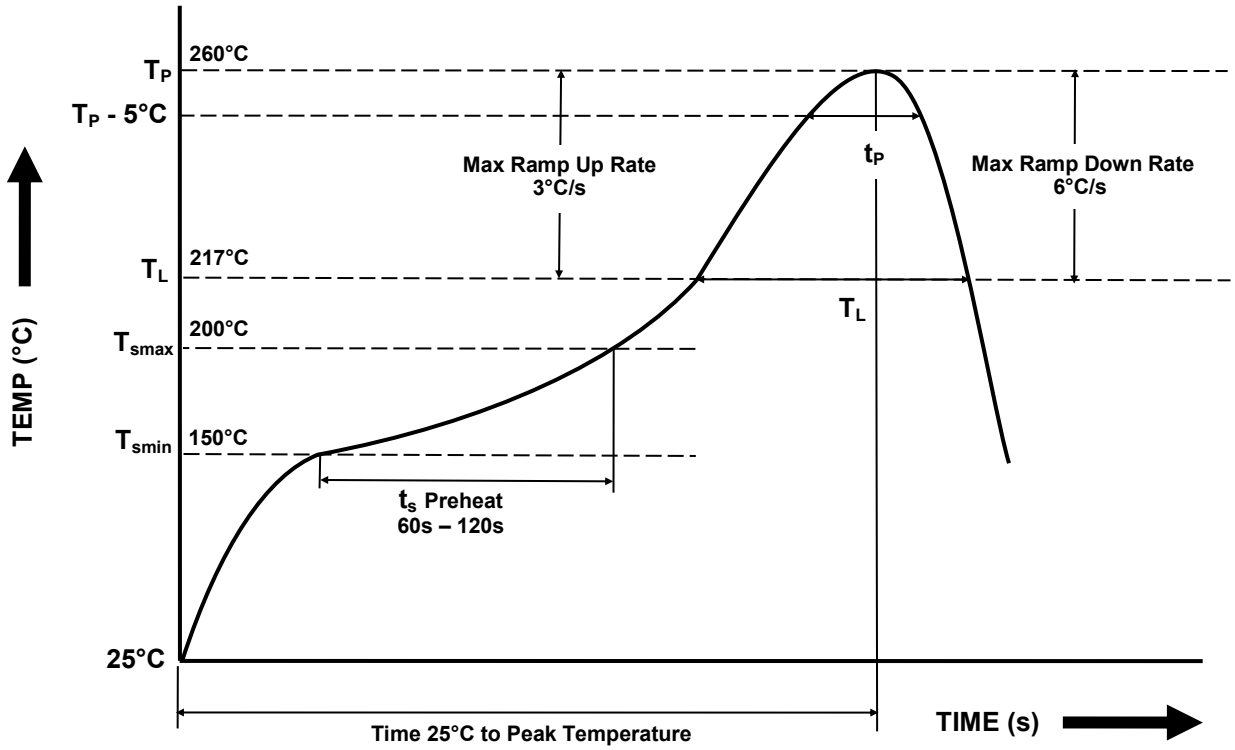
Direction of feed from reel





Dimension No.	A0	A1	B0	D0	D1	E	F
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.	**Po**	**P1**	**P2**	**t**	**W**	**K0**	**K1**
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
Preheat - Min Temperature (T_{SMIN}) - Max Temperature (T_{SMAX}) - Time T_{SMIN} to T_{SMAX} (t_s)	 150°C 200°C 60s - 120s
Soldering Zone - Peak Temperature (T_P) - Liquidous Temperature (T_L) - Time within 5°C of Actual Peak Temperature (T_P – 5°C) - Time maintained above T_L (t_L) - Ramp Up Rate (T_L to T_P) - Ramp Down Rate (T_P to T_L)	 260°C 217°C 30s 60s 3°C/s max 6°C/s max
Average Ramp Up Rate (T_{smax} to T_P)	3°C/s max
Time 25°C to Peak Temperature	8 minutes max

ISOCOM COMPONENTS

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