

MF303x, MF304x, MF306x, MF308x

DESCRIPTION

The MF303x, MF304x, MF306x and MF308x series of devices consist of a GaAs infrared emitting diode optically coupled to a monolithic silicon detector performing the function of a zero voltage crossing bilateral triac driver. They are designed for use with a discrete power triac in the interface of logic systems to equipment powered from 110 to 240 VAC lines.

FEATURES

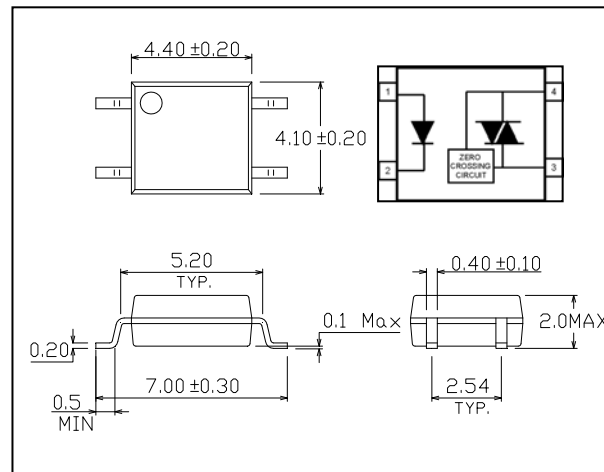
- Zero Voltage Crossing
- V_{DRM}
MF303x 250V
MF304x 400V
MF306x 600V
MF308x 800V
- Mini Flat Package
- Isolation Voltage 3750V_{RMS}
- Wide Operating Temperature Range
-40°C to 110°C
- Pb Free and RoHS Compliant
- Safety Approvals Pending

APPLICATIONS

- Solenoid / Valve Controls
- Light Controls
- AC Motor Drivers
- Temperature Controls
- AC Motor Starters
- Solid State Relays

ORDER INFORMATION

- Available in Tape & Reel



ABSOLUTE MAXIMUM RATINGS

Input

Forward Current	60mA
Peak Forward Current (1μs pulse 300pps)	1A
Reverse Voltage	6V
Power dissipation	100mW

Output

Off-state Output Terminal Voltage	
MF303x	250V
MF304x	400V
MF306x	600V
MF308x	800V
On-state rms Current	70mA
Power Dissipation	300mW

Total Package

Isolation Voltage	3750V _{RMS}
Operating Temperature	-40 to 110 °C
Storage Temperature	-55 to 150 °C
Lead Soldering Temperature (10s)	260°C

ISOCOM COMPONENTS 2004 LTD

Unit 25B, Park View Road West, Park View Industrial Estate
 Hartlepool, Cleveland, TS25 1UD, United Kingdom
 Tel: +44 (0)1429 863 609 Fax : +44 (0)1429 863 581
 e-mail: sales@isocom.co.uk
<http://www.isocom.com>

ISOCOM COMPONENTS ASIA LTD

Hong Kong Office,
 Block A, 8/F, Wah Hing Industrial mansion,
 36 Tai Yau Street, San Po Kong, Kowloon, Hong Kong.
 Tel: +852 2995 9217 Fax : +852 8161 6292
 e-mail sales@isocom.com.hk



MF303x, MF304x, MF306x, MF308x

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

INPUT

Parameter	Symbol	Test Condition	Min	Typ.	Max	Unit
Forward Voltage	V_F	$I_F = 30\text{mA}$			1.5	V
Reverse Leakage Current	I_R	$V_R = 6\text{V}$			10	μA

OUTPUT

Parameter	Symbol	Test Condition	Min	Typ.	Max	Unit
Peak Off-state Current	I_{DRM}	$V_{\text{DRM}} = \text{Rated } V_{\text{DRM}}$ $I_F = 0\text{mA}$ (Note 1)			100	nA
Peak Blocking Voltage	V_{DRM}	$I_{\text{DRM}} = 100\text{nA}$ MF3030 / MF3031 MF3032 / MF3033 MF3040 / MF3041 MF3042 / MF3043 MF3060 / MF3061 MF3062 / MF3063 MF3080 / MF3081 MF3082 / MF3083			250 400 600 800	V
On-state Voltage	V_{TM}	$I_{\text{TM}} = 100\text{mA (peak)}$			3	V
Critical Rate of Rise of Off-state Voltage	dv/dt		1000			V/ μs

MF303x, MF304x, MF306x, MF308x

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

COUPLED

Parameter	Symbol	Test Condition	Min	Typ.	Max	Unit
Input Trigger Current	I_{FT}	$V_{TM} = 3\text{V}$ MF3030 / MF3040 / MF3060 / MF3080 MF3031 / MF3041 / MF3061 / MF3081 MF3032 / MF3042 / MF3062 / MF3082 MF3033 / MF3043 / MF3063 / MF3083 (Note 2)			30 15 10 5	mA
Holding Current (either direction)	I_H			280		μA
Input to Output Isolation Voltage	V_{ISO}	(note 3)	3750			V_{RMS}

ZERO CROSSING CHARACTERISTIC

Parameter	Symbol	Test Condition	Min	Typ.	Max	Unit
Inhibit Voltage	V_{INH}	$I_F = \text{Rated } I_{FT}$, MT1-MT2 Voltage above which device will not trigger			20	V
Leakage in Inhibit State	I_{INH}	$I_F = \text{Rated } I_{FT}$, $V_{DRM} = \text{Rated } V_{DRM}$, Off-state			1000	μA

Note 1 : Test Voltage must be applied within dv/dt rating.

Note 2 : Guaranteed to trigger at an I_F value less than or equal to max I_{FT} , recommended I_F lies between Rated I_{FT} to Absolute Max I_F .

Note 3 : Measured with input leads shorted together and output leads shorted together.



MF303x, MF304x, MF306x, MF308x

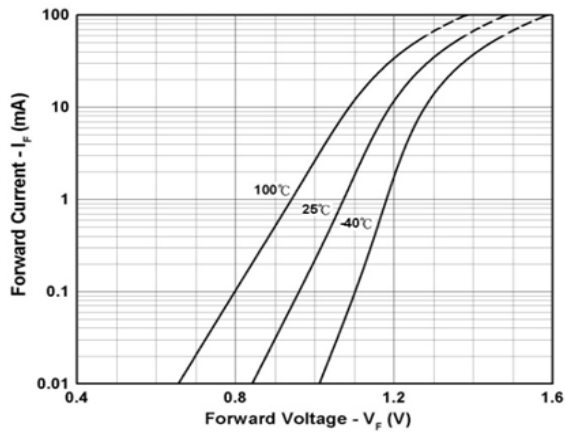


Fig 1 Forward Current vs Forward Voltage

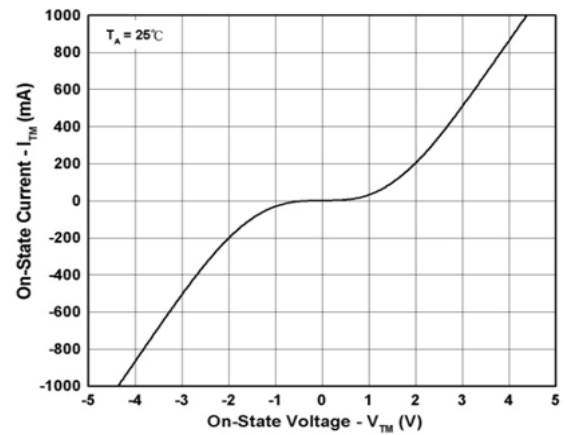


Fig 2 On-State Characteristics

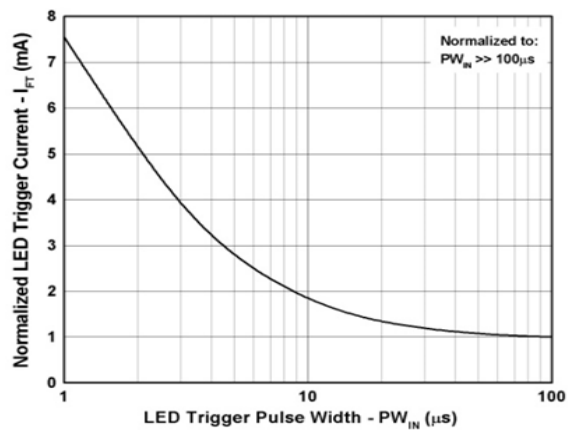


Fig 3 LED Trigger Current vs Trigger Pulse Width

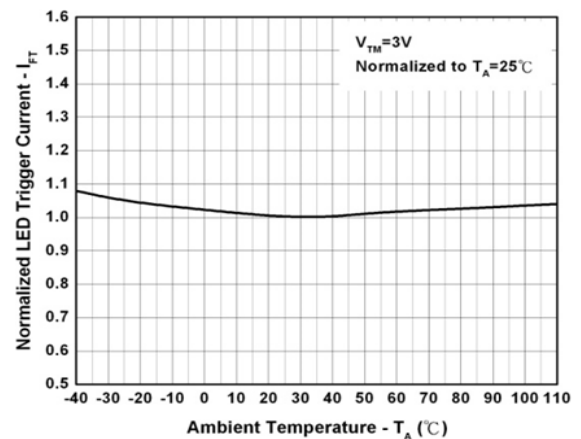


Fig 4 LED Trigger Current vs Ambient Temperature

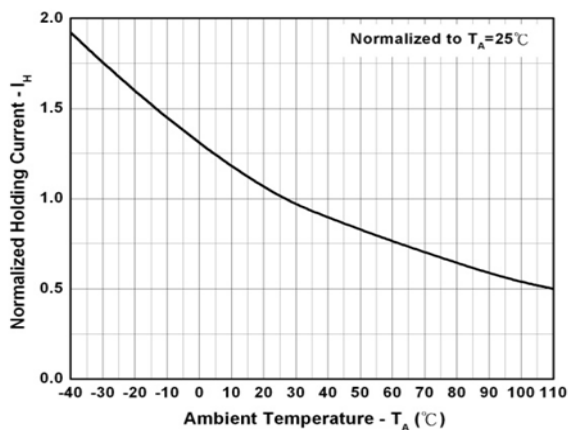


Fig 5 Holding Current vs Ambient Temperature

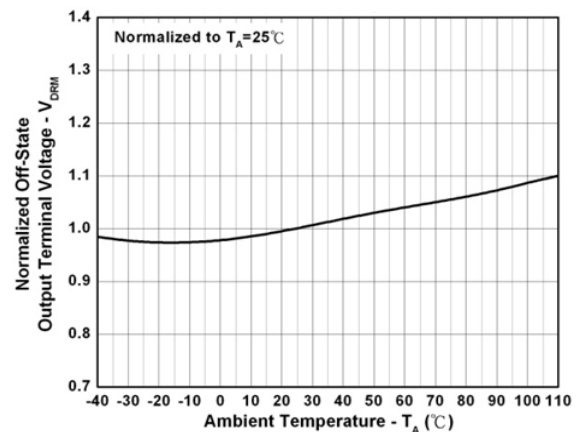


Fig 6 Off-State Output Terminal Voltage vs Ambient Temperature



MF303x, MF304x, MF306x, MF308x

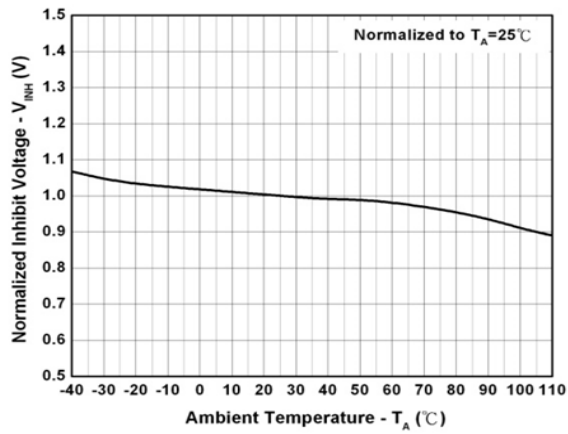


Fig 7 Inhibit Voltage vs Ambient Temperature

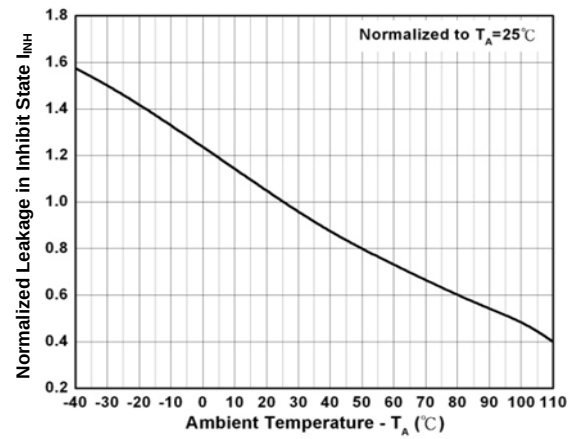


Fig 8 Leakage Current in Inhibit State vs Ambient Temperature

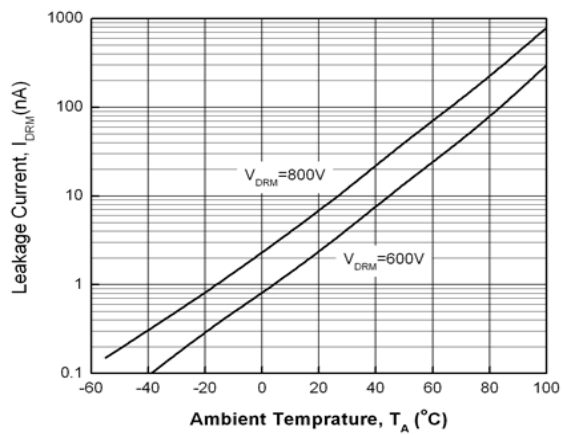


Fig 9 Leakage Current vs Ambient Temperature



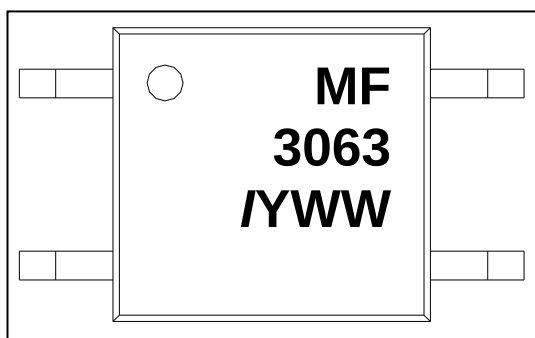
ISOCOM
COMPONENTS

MF303x, MF304x, MF306x, MF308x

ORDER INFORMATION

IS281			
After PN	PN	Description	Packing quantity
None	MF3030, MF3031, MF3032, MF3032, MF3033 MF3040, MF3041, MF3042, MF3043 MF3060, MF3061, MF3062, MF3063 MF3080, MF3081, MF3082, MF3083	Surface Mount Tape & Reel	3000 pcs per reel

DEVICE MARKING



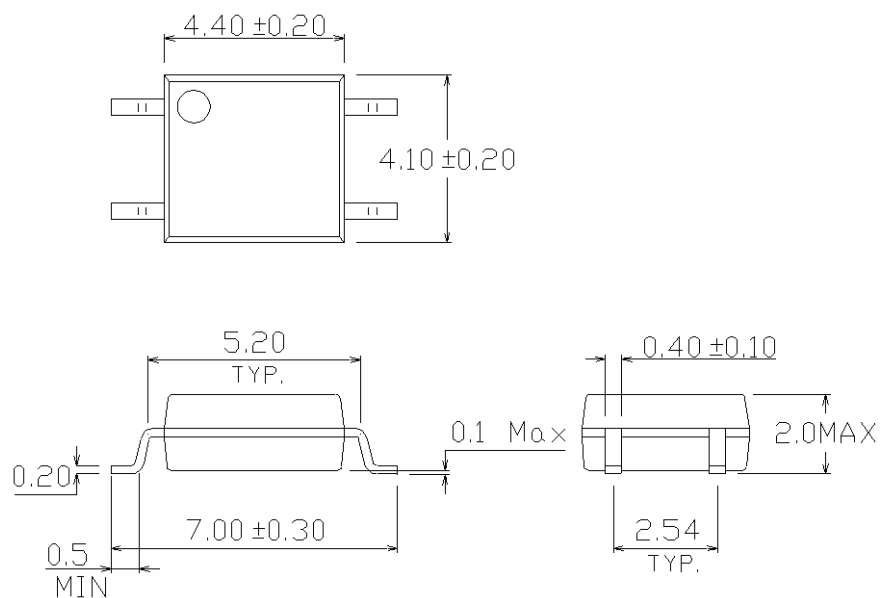
MF3063 denotes Device Part Number where "MF3063" is used as example
/ denotes Isocom
Y denotes 1 digit Year code
WW denotes 2 digit Week code



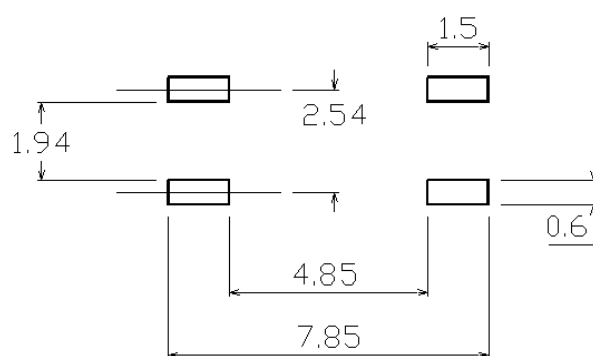
ISOCOM
COMPONENTS

MF303x, MF304x, MF306x, MF308x

PACKAGE DIMENSIONS (mm)



RECOMMENDED PAD LAYOUT (mm)

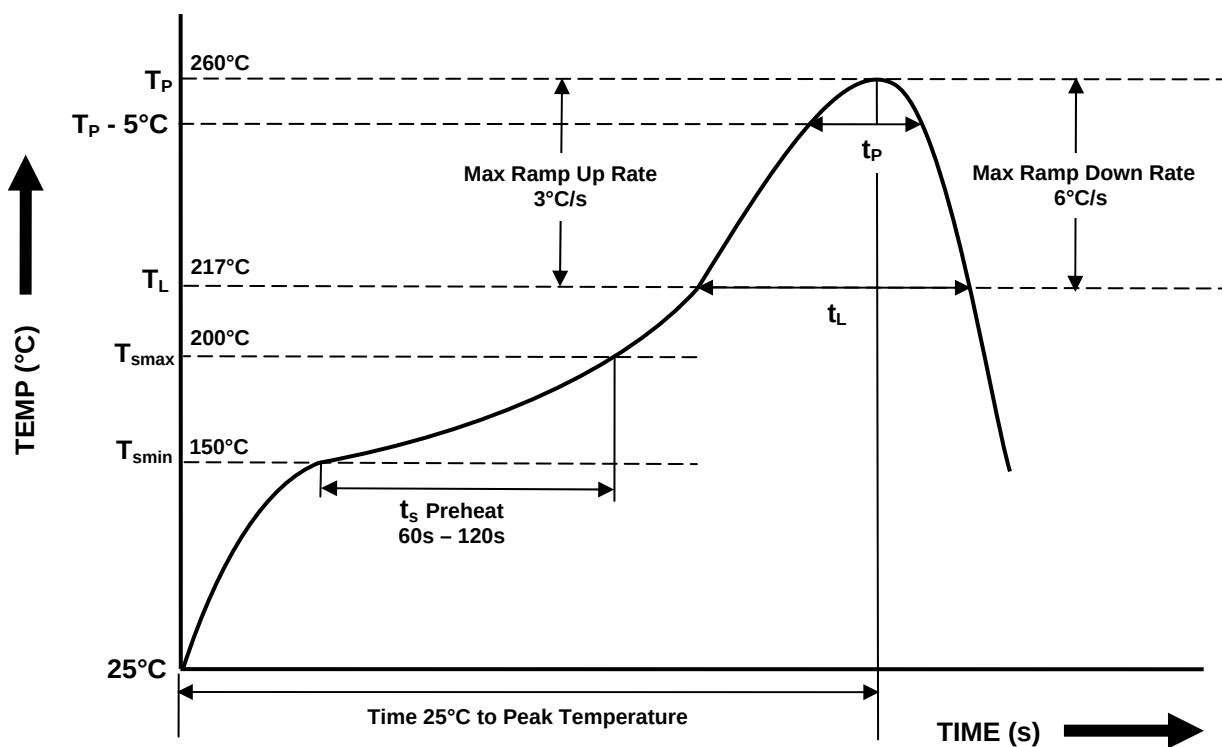




MF303x, MF304x, MF306x, MF308x

IR REFLOW SOLDERING TEMPERATURE PROFILE

(One Time Reflow Soldering is Recommended)



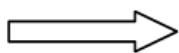
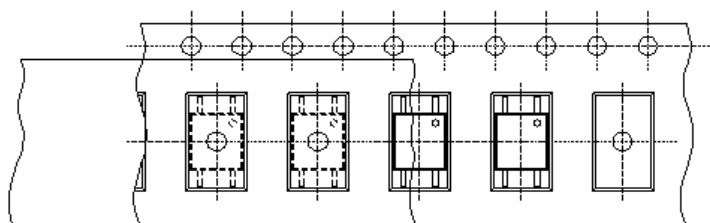
Profile Details	Conditions
Preheat - Min Temperature (T_{smin}) - Max Temperature (T_{smax}) - Time T_{smin} to T_{smax} (t_s)	150°C 200°C 60s – 120s
Soldering Zone - Peak Temperature (T_P) - Liquidous Temperature (T_L) - Time within 5°C of Actual Peak Temperature ($T_P - 5^\circ\text{C}$) - Time maintained 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 – 100s 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



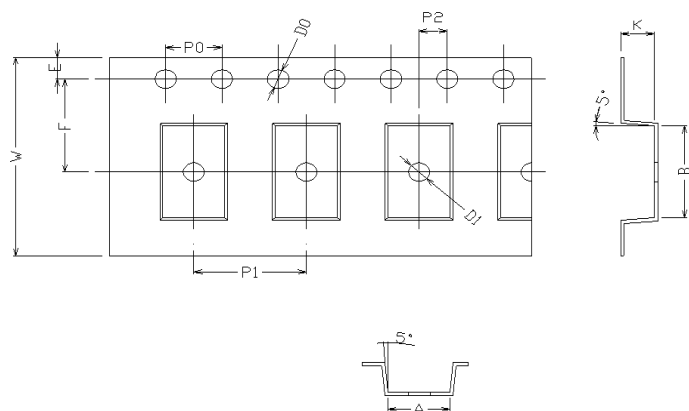
ISOCOM
COMPONENTS

MF303x, MF304x, MF306x, MF308x

TAPE AND REEL PACKAGING (mm)

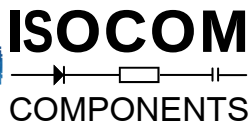


Direction of feed from reel



Dimension No.	A	B	Do	D1	E	F
mm	4.4 ± 0.1	7.4 ± 0.1	$1.5 + 0.1/-0$	1.5 ± 0.1	1.75 ± 0.1	7.5 ± 0.1

Dimension No.	Po	P1	P2	t	W	K
mm	4.0 ± 0.15	8.0 ± 0.1	2.0 ± 0.1	0.25 ± 0.03	16.0 ± 0.2	2.4 ± 0.1



MF303x, MF304x, MF306x, MF308x

NOTES :

- Isocom is continually improving the quality, reliability, function or design and Isocom reserves the right to make changes without further notices.
- The products shown in this publication are designed for the general use in electronic applications such as office automation equipment, communications devices, audio/visual equipment, electrical application and instrumentation.
- For equipment/application where high reliability or safety is required, such as space applications, nuclear power control equipment, medical equipment, etc., please contact our sales representatives.
- When requiring a device for any "specific" application, please contact our sales for advice.
- The contents described herein are subject to change without prior notice.
- Do not immerse device body in solder paste.