

# G3VM-□C□/□F□/□CR/□FR

MOS FET Relays DIP 8-pin, Multi-contact-pair Type

## MOS FET Relays in DIP 8-pin packages with multiple contact pairs for a wide range of circuits

- Contact form: 2a (DPST-NO), 2b (DPST-NC), 1a1b (SPST-NO/SPST-NC)
- Load voltage: 60 V, 350 V, or 400 V



Note: The actual product is marked differently from the image shown here.

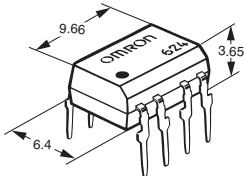
RoHS Compliant

### Application Examples

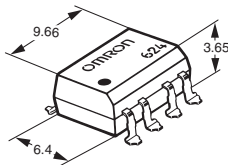
- Communication equipment
- Test & Measurement equipment

### Package (Unit : mm, Average)

DIP 8-pin  
PCB Terminals



Surface-mounting Terminals



Note: The actual product is marked differently from the image shown here.

### Model Number Legend

G3VM-□□□□□  
1 2 3 4 5

#### 1. Load Voltage

- 6 : 60 V
- 35 : 350 V
- 40 : 400 V

#### 2. Contact form

- 2 : 2a (DPST-NO)
- 4 : 2b (DPST-NC)
- 5 : 1a1b (SPST-NO/SPST-NC)

#### 3. Package

- C : DIP 8-pin with PCB terminals
- F : DIP 8-pin with surface-mounting terminals

#### 4. Additional functions

- R: Low ON resistance

#### 5. Other informations

When specifications overlap, serial code is added in the recorded order.

### Ordering Information

Package	Contact form	Load voltage (peak value) *	Continuous load current (peak value) *	Stick packaging		Minimum package quantity	Tape packaging	
				Model			Model	Minimum package quantity
				PCB Terminals	Surface-mounting Terminals			
DIP8	2a (DPST-NO)	60 V	500 mA	G3VM-62C1	G3VM-62F1	50 pcs.	G3VM-62F1(TR)	1,500 pcs.
			120 mA	G3VM-352C	G3VM-352F		G3VM-352F(TR)	
	2b (DPST-NC)	350 V	150 mA	G3VM-354C	G3VM-354F		G3VM-354F(TR)	
			120 mA	G3VM-355CR	G3VM-355FR		G3VM-355FR(TR)	
	2a (DPST-NO)	400 V			G3VM-402C		G3VM-402F	

\* The AC peak and DC value are given for the load voltage and continuous load current.

Note: To order tape packaging for Relays with surface-mounting terminals, add "(TR)" to the end of the model number.

### ■ Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	G3VM-62C1	G3VM-352C	G3VM-354C	G3VM-355CR	G3VM-402C	Unit	Measurement conditions	
		G3VM-62F1	G3VM-352F	G3VM-354F	G3VM-355FR	G3VM-402F			
Input	LED forward current	50					mA		
	Repetitive peak LED forward current	1					A	100 μs pulses, 100 pps	
	LED forward current reduction rate	-0.5					mA/°C	Ta ≥ 25°C	
	LED reverse voltage	5					V		
	Connection temperature	125					°C		
Output	Load voltage (AC peak/DC)	V <sub>OFF</sub>	60	350		400	V		
	Continuous load current (AC peak/DC)	I <sub>o</sub>	500	120	150	120	mA		
	ON current reduction rate	ΔI <sub>o</sub> /°C	-5	-1.2	-1.5	-1.2	mA/°C	Ta ≥ 25°C	
	Pulse ON current	I <sub>op</sub>	1,500	360	450	360	mA	t=100 ms, Duty=1/10	
	Connection temperature	T <sub>J</sub>	125					°C	
	Dielectric strength between I/O *	V <sub>i-o</sub>	2,500					V <sub>rms</sub>	AC for 1 min
Ambient operating temperature	T <sub>a</sub>	-40 to +85					°C	With no icing or condensation	
Ambient storage temperature	T <sub>stg</sub>	-55 to +125					°C		
Soldering temperature	-	260					°C	10 s	

\* The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the light-receiving side.

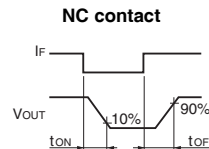
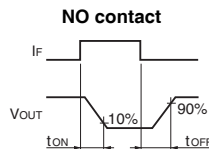
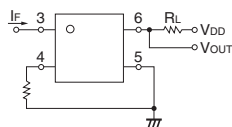
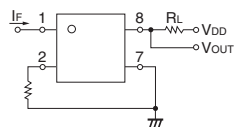
DIP

G3VM-□C□/□F□/□CR/□FR

## Electrical Characteristics (Ta = 25°C)

Item	Symbol		G3VM-62C1 G3VM-62F1	G3VM-352C G3VM-352F	G3VM-354C G3VM-354F	G3VM-355CR G3VM-355FR	G3VM-402C G3VM-402F	Unit	Measurement conditions
LED forward voltage	VF	Minimum	1.0					V	IF=10 mA
		Typical	1.15						
		Maximum	1.3						
Reverse current	IR	Maximum	10					μA	VR=5 V
Capacitance between terminals	CT	Typical	30					pF	V=0, f=1 MHz
Input Trigger LED forward current	IFT (IFC) *2	Typical	1.6	1				mA	G3VM-62C1/62F1/352C/352F/402C/402F : Io=Continuous load current ratings G3VM-354C/354F : Ioff=10 μA G3VM-355CR/355FR : 1a : Io=120 mA, 1b : Ioff=10 μA
		Maximum	3						
Release LED forward current	IFC (IFT) *2	Minimum	0.1					mA	G3VM-62C1/62F1/352C/352F/402C/402F : Ioff=100 μA G3VM-354C/354F : Io=150 mA G3VM-355CR/355FR : 1a : Ioff=10 μA, 1b : Io=120 mA
Output Maximum resistance with output ON	RON	Typical	1	35 (25)	15		18	Ω	G3VM-62C1/62F1/402C/402F/352C/352F : IF=5 mA, Io=Continuous load current ratings Values in parentheses are for t < 1 s. G3VM-354C/354F : Io=150 mA G3VM-355CR/355FR : 1a : IF=5 mA, Io=120 mA, 1b : IF=0 mA, Io=120 mA
		Maximum	2	50 (35)	25		35		
Current leakage when the relay is open	ILEAK	Maximum	1					μA	G3VM-354C/354F : V=0, f=1 MHz, IF=5 mA G3VM-355CR/355FR : 1a : V=0, f=1 MHz 1b : V=0, f=1 MHz, IF=5 mA Others : V=0, f=1 MHz
Capacitance between terminals	COFF	Typical	130	30	85	65	40	pF	V=0, f=1 MHz
Capacitance between I/O terminals	CI-O	Typical	0.8					pF	f=1 MHz, Vs=0 V
Insulation resistance between I/O terminals	RI-O	Minimum	1000					MΩ	VI-O=500 VDC, RoH≤60%
		Typical	10 <sup>8</sup>						
Turn-ON time	tON	Typical	0.8	0.3	0.1	-		ms	IF=5 mA, RL=200 Ω, VDD=20 V *1
		Maximum	2	1		1a : 1, 1b : 1	1		
Turn-OFF time	tOFF	Typical	0.1	0.1	1	-		ms	IF=5 mA, RL=200 Ω, VDD=20 V *1
		Maximum	0.5	1	3	1a : 1, 1b : 3	1		

\*1. Turn-ON and Turn-OFF Times



\*2. These values are for Relays with NC contacts

## Recommended Operating Conditions

For usage with high reliability, Recommended Operation Conditions is a measure that takes into account the derating of Absolute Maximum Ratings and Electrical Characteristics.

Each item on this list is an independent condition, so it is not simultaneously satisfy several conditions.

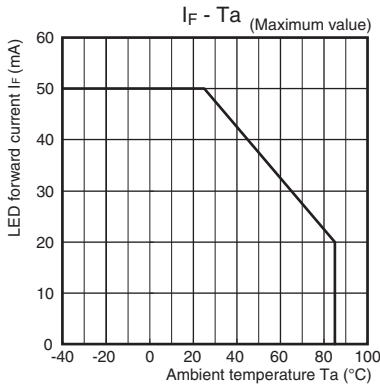
Item	Symbol		G3VM-62C1 G3VM-62F1	G3VM-352C G3VM-352F	G3VM-354C G3VM-354F	G3VM-355CR G3VM-355FR	G3VM-402C G3VM-402F	Unit
Load voltage (AC peak/DC)	VDD	Maximum	48	280			320	V
Operating LED forward current	IF	Minimum	5					mA
		Typical	7.5			-	7.5	
		Maximum	25					
Continuous load current (AC peak/DC)	Io	Maximum	500	100	150	120	100	
Ambient operating temperature	Ta	Minimum	-20					°C
		Maximum	65					

## Spacing and Insulation

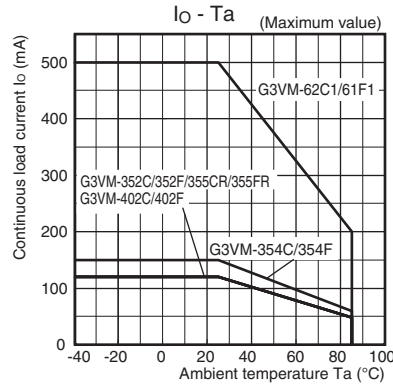
Item	Minimum	Unit
Creepage distances	7.0	mm
Clearance distances	7.0	
Internal isolation thickness	0.4	

## Engineering Data

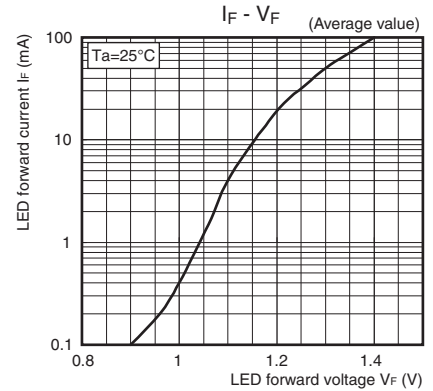
### LED forward current vs. Ambient temperature



### Continuous load current vs. Ambient temperature

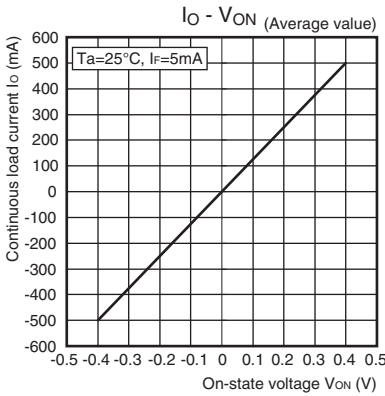


### LED forward current vs. LED forward voltage

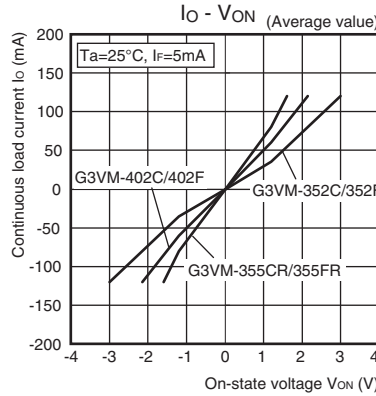


### Continuous load current vs. On-state voltage

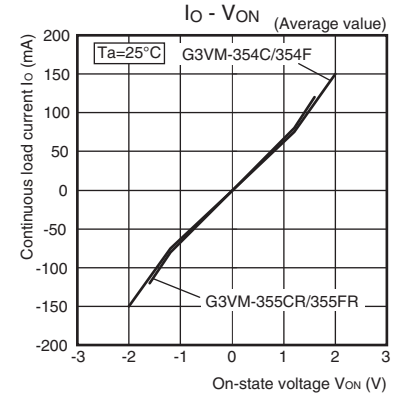
G3VM-62C1/62F1



G3VM-352C/352F/402C/402F  
G3VM-355CR/355FR [SPST-NO Contacts]

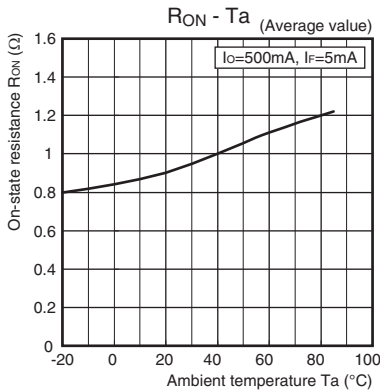


G3VM-354C/354F  
G3VM-355CR/355FR [SPST-NC Contacts]

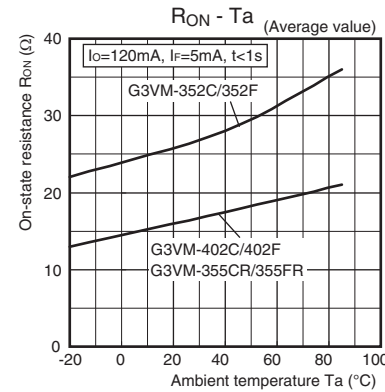


### On-state resistance vs. Ambient temperature

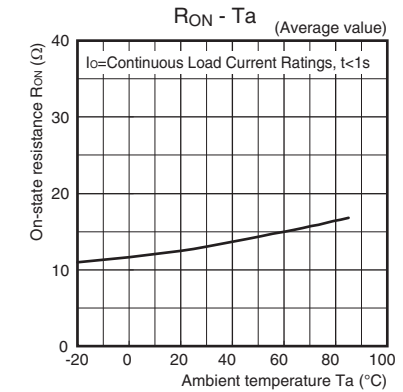
G3VM-62C1/62F1



G3VM-352C/352F/402C/402F  
G3VM-355CR/355FR [SPST-NO Contacts]

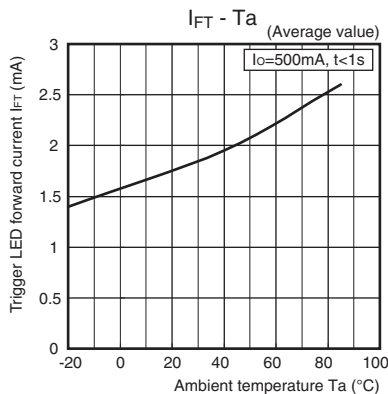


G3VM-354C/354F  
G3VM-355CR/355FR [SPST-NC Contacts]

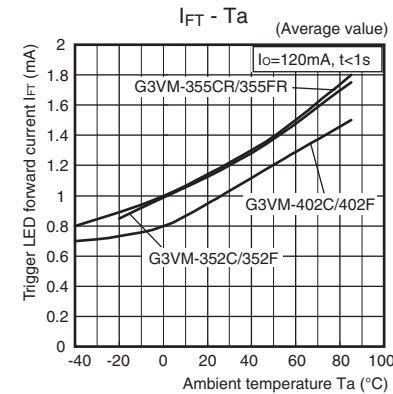


### Trigger LED forward current vs. Ambient temperature

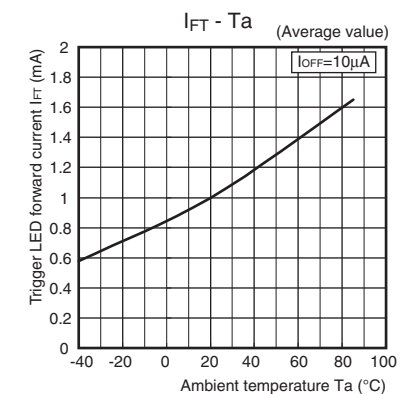
G3VM-62C1/62F1



G3VM-352C/352F/402C/402F  
G3VM-355CR/355FR [SPST-NO Contacts]



G3VM-354C/354F  
G3VM-355CR/355FR [SPST-NC Contacts]

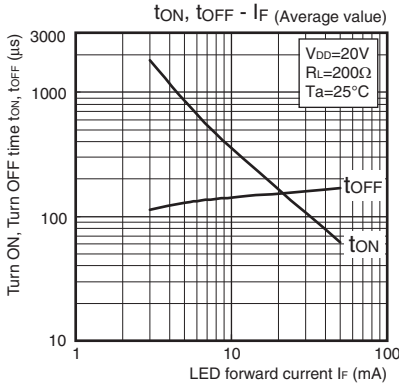


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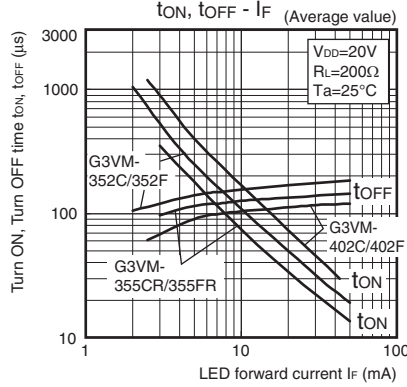
G3VM-□C□/□F□/□CR/□FR

## Engineering Data

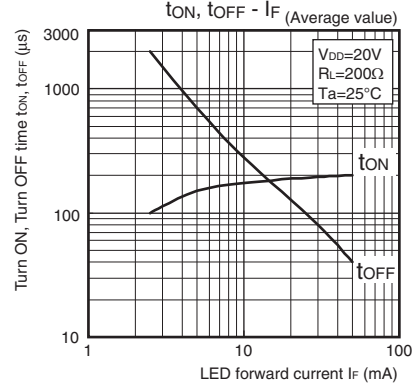
### Turn ON, Turn OFF time vs. LED forward current G3VM-62C1/62F1



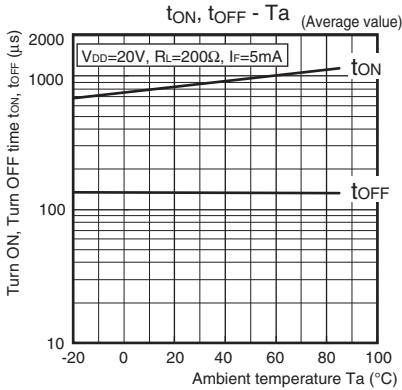
### G3VM-352C/352F/402C/402F G3VM-355CR/355FR [SPST-NO Contacts]



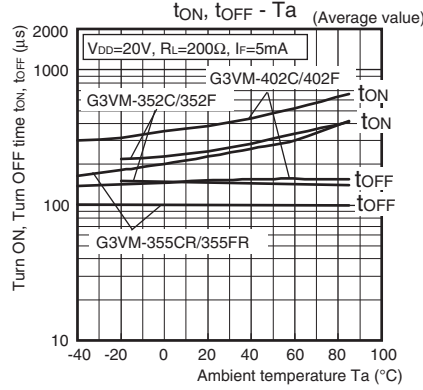
### G3VM-354C/354F G3VM-355CR/355FR [SPST-NC Contacts]



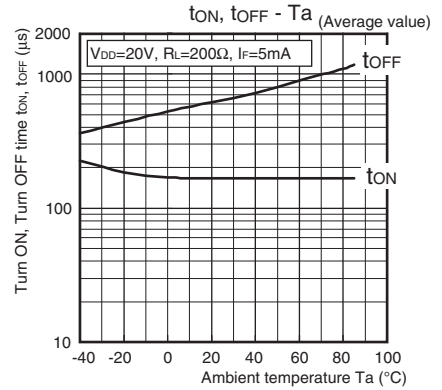
### Turn ON, Turn OFF time vs. Ambient temperature G3VM-62C1/62F1



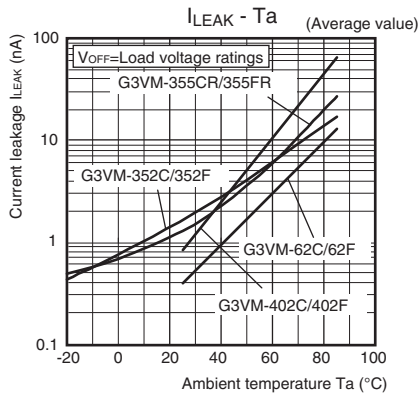
### G3VM-352C/352F/402C/402F G3VM-355CR/355FR [SPST-NO Contacts]



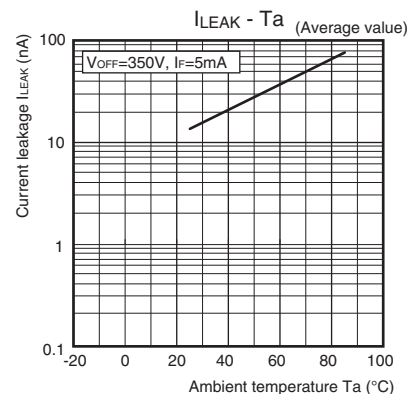
### G3VM-354C/354F G3VM-355CR/355FR [SPST-NC Contacts]



### Current leakage vs. Ambient temperature G3VM-62C1/62F1/352C/352F/402C/402F G3VM-355CR/355FR [SPST-NO Contacts]



### G3VM-354C/354F G3VM-355CR/355FR [SPST-NC Contacts]



DIP

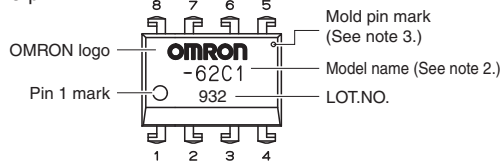
G3VM-□C□/□F□/□CR/□FR

### ■ Appearance / Terminal Arrangement / Internal Connections

#### ● Appearance

##### DIP (Dual Inline Package)

DIP 8-pin



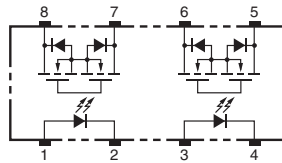
**Note:** 1. The actual product is marked differently from the image shown here.

**Note:** 2. "G3VM" does not appear in the model number on the Relay.

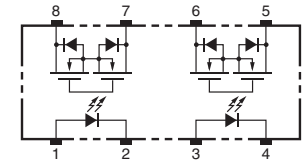
**Note:** 3. The indentation in the corner diagonally opposite from the pin 1 mark is from a pin on the mold.

#### ● Terminal Arrangement/Internal Connections (Top View)

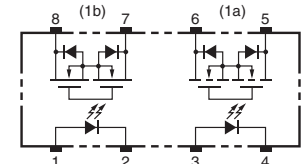
G3VM-62C1/62F1/352C/352F/402C/402F



G3VM-354C/354F



G3VM-355CR/355FR



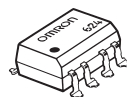
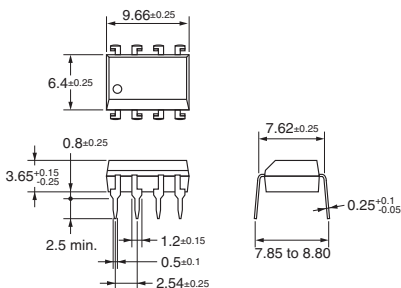
### ■ Dimensions (Unit: mm)

DIP 8-pin



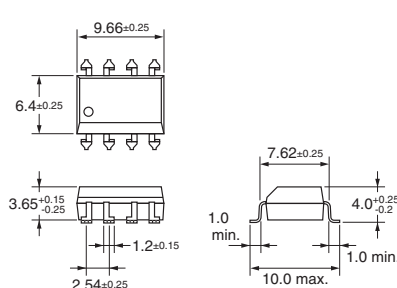
#### PCB Terminals

Weight: 0.54 g

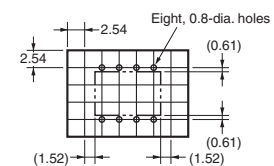


#### Surface-mounting Terminals

Weight: 0.54 g

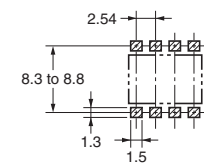


#### PCB Dimensions (BOTTOM VIEW)



#### Actual Mounting Pad Dimensions

(Recommended Value, Top View)



**Note:** The actual product is marked differently from the image shown here.

### ■ Approved Standards

UL recognized

Model	Approved Standards	Contact form	File No.
G3VM-62C1 G3VM-62F1 G3VM-352C G3VM-352F G3VM-402C G3VM-402F	UL (recognized)	2a (DPST-NO)	E80555
G3VM-354C G3VM-354F		2b (DPST-NC)	
G3VM-355CR G3VM-355FR		1a1b (SPST-NO/SPST-NC)	

Models Certified by BSI for EN/IEC Standards

Model	Approved Standards	Contact form	File No.
G3VM-352C G3VM-352F	EN62368-1 (BSI certified)	2a (DPST-NO)	VC669156

### ■ Safety Precautions

- Refer to the *Common Precautions for All MOS FET Relays* for precautions that apply to all MOS FET Relays.

DIP

G3VM-□C□/□F□/□CR/□FR

Please check each region's Terms & Conditions by region website.

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Electronic and Mechanical Components Company

### Regional Contact

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