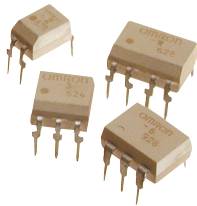
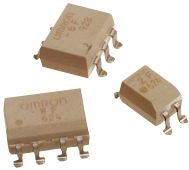
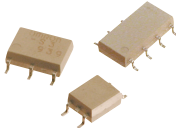



# MOS FET Relay

# Selection Guide

					
<b>General Attributes</b>		<b>G3VM PCB</b>	<b>G3VM SMT</b>	<b>G3VM SOP</b>	<b>G3VM SSOP</b>
<b>Dimensions mm (in)</b>	Please refer to data sheets for all dimension information	Please refer to data sheets for all dimension information	Please refer to data sheets for all dimension information	Please refer to data sheets for all dimension information	4 pin: 3.8 L x 2.04 W x 1.8 H (0.15 x 0.08 x 0.07)
<b>Features</b>	<ul style="list-style-type: none"> <li>• Solid-state relay with MOS FET output and photo-LED input</li> <li>• Ideal for communication equipment, medical devices, computer peripheral, office automation, security, and control applications</li> </ul>	<ul style="list-style-type: none"> <li>• Solid-state relay with MOS FET output and photo-LED input</li> <li>• Ideal for communication equipment, medical devices, computer peripheral, office automation, security, and control applications</li> </ul>	<ul style="list-style-type: none"> <li>• Solid-state relay with MOS FET output and photo-LED input</li> <li>• Ideal for communication equipment, medical devices, computer peripheral, office automation, security, and control applications</li> <li>• Low ON resistance and low output capacitance versions ideal for ATE and Instrumentation</li> </ul>	<ul style="list-style-type: none"> <li>• Solid-state relay with MOS FET output and photo-LED input</li> <li>• Ideal for communication equipment, medical devices, computer peripheral, office automation, security, and control applications</li> <li>• Low ON resistance and low output capacitance versions ideal for ATE and Instrumentation</li> </ul>	
<b>Load voltage</b>	60 – 600 V	60 – 600 V	20 – 600 V	20 – 100 V	
<b>Contact form</b>	1 Form A, 2 Form A, 1 Form B, 2 Form B, 1 Form A+1 Form B	1 Form A, 2 Form A, 1 Form B, 2 Form B, 1 Form A+1 Form B	1 Form A, 2 Form A, 1 Form B, 2 Form B, 1 Form A+1 Form B	1 Form A	
<b>Load current</b>	100 – 2,500 mA	100 – 2,500 mA	80 – 1,250 mA	80 – 900 mA	
<b>Dielectric strength (50/60 Hz for 1 minute)</b>	2,500 VAC, 5,000 VAC	1,500 VAC, 2,500 VAC, 5,000 VAC	1,500 VAC	1,500 VAC	
<b>ON resistance</b>	0.065 – 40 Ω (typical)	0.065 – 40 Ω (typical)	0.02 – 40 Ω (typical)	0.18 – 25 Ω (typical)	
<b>Output capacitance</b>	30 – 400 pF (typical)	30 – 400 pF (typical)	0.6 – 1,000 pF (typical)	0.45 – 40 pF (typical)	
<b>Packaging</b>	Tube	Tube or tape-and-reel	Tube or tape-and-reel	Tape-and-reel or cut tape	
<b>Additional features</b>	Low ON resistance, Current limiting, High I/O isolation, High Current	Low ON resistance, Current limiting, High I/O isolation, High Current	Low ON resistance, Low output capacitance, Current limiting, High Current, Low LED Trigger	Low ON resistance, Low output capacitance, Low Leakage	

## ■ Normally Open Relays

Load voltage		20 V		40 V	60 V		80 V		100 V
Number of terminals		4	6	4	4	6	4	6	4
SPST-NO	Through hole				G3VM-61A1	G3VM-61B1 G3VM-61BR			
	SMT				G3VM-61D1	G3VM-61E1 G3VM-61ER			
	SOP	G3VM-21GR G3VM-21GR1	G3VM-21HR	G3VM-41GR3 G3VM-41GR4 G3VM-41GR5 G3VM-41GR6 G3VM-41GR7 G3VM-41GR8	G3VM-61G1 G3VM-61G2 G3VM-61GR1	G3VM-61H1	G3VM-81G1 G3VM-81GR G3VM-81GR1	G3VM-81HR	
	SSOP	G3VM-21LR G3VM-21LR1 G3VM-21LR10 G3VM-21LR11		G3VM-41LR3 G3VM-41LR4 G3VM-41LR5 G3VM-41LR6 G3VM-41LR10 G3VM-41LR11	G3VM-61LR		G3VM-81LR		G3VM-101LR

Load voltage		200 V		350V		400 V		600 V	
Number of terminals		4	6	4	6	4	6	4	6
SPST-NO	Through hole			G3VM-351A	G3VM-351B	G3VM-401A	G3VM-401B G3VM-401BY		G3VM-601BY
	SMT			G3VM-351D	G3VM-351E	G3VM-401D	G3VM-401E G3VM-401EY		G3VM-601EY
	SOP	G3VM-S5 G3VM-201G G3VM-201G1	G3VM-201H1	G3VM-351G G3VM-351G1	G3VM-351H	G3VM-401G	G3VM-401H	G3VM-601G	

Load voltage		60 V	200 V	350 V	400 V
Number of terminals		8	8	8	8
DPST-NO	Through hole	G3VM-62C1		G3VM-352C	G3VM-402C
	SMT	G3VM-62F1		G3VM-352F	G3VM-402F
	SOP	G3VM-62J1	G3VM-202J1	G3VM-352J	G3VM-402J

## ■ Normally Open Current-limiting Relays

Load voltage		350 V
Number of terminals		4
SPST-NO	Through hole	G3VM-2L
	SMT	G3VM-2FL
	SOP	G3VM-351GL

Load voltage		350 V
Number of terminals		8
DPST-NO	Through hole	G3VM-WL
	SMT	G3VM-WFL

## ■ Normally Closed Relays

Load voltage		350 V	
Number of terminals		4	6
SPST-NC	Through hole	G3VM-353A G3VM-353A1	G3VM-353B G3VM-353B1
	SMT	G3VM-353D G3VM-353D1	G3VM-353E G3VM-353E1
	SOP	G3VM-353G G3VM-353G1	G3VM-353H G3VM-353H1

Load voltage		350 V	
Number of terminals		8	
DPST-NC	Through hole	G3VM-354C G3VM-354C1	
	SMT	G3VM-354F G3VM-354F1	
	SOP	G3VM-354J G3VM-354J1	

## ■ SPST-NO/SPST-NC Relays

Load voltage		350 V	
Number of terminals		8	
SPST-NO/ SPST-NC	Through hole	G3VM-355C G3VM-355CR	
	SMT	G3VM-355F G3VM-355FR	
	SOP	G3VM-355J G3VM-355JR	

## Model Number Structure

### ■ G3VM Model Number Legend

G3VM-□□□□□  
1 2 3 4 5

Note: Some products may have a different model number structure.

1. Load Voltage	2. Contact Form	3. Package Type	4. Additional Functions	5. Other Information
2: 20 V	1: SPST-NO	A: 4-pin DIP	L: Current limit	When specifications overlap, serial code is added in the recorded order.
4: 40 V	2: DPST-NO	B: 6-pin DIP	M: Basic multifunction	
6: 60 V	3: SPST-NC	C: 8-pin DIP	N: Multifunction without diode	
8: 80 V	4: DPST-NC	D: 4-pin SMD	O: Single input LED	
10: 100 V	5: SPST-NO/SPST-NC	E: 6-pin SMD	P: Special pin arrangement	
20: 200 V	6: Other form	F: 8-pin SMD	Q: Multifunction with current limiter	
25: 250 V		G: 4-pin SOP	R: Low ON-resistance	
35: 350 V		H: 6-pin SOP	S: Slow ON/OFF	
40: 400 V		J: 8-pin SOP	T: Multifunction with current limiter and without diode	
60: 600 V		K: 18-pin SOP	Y: Dielectric strength between I/O above 2.5 kV	
		L: 4-pin SSOP		

Note: 1. The letter "I" is not used because it may be confused with the number "1."

2. For 4-pin SOP models, where the available marking space is insufficient to clearly differentiate model numbers with 6 or more suffix digits, the package type code (3) is omitted.

# G3VM Series

Load Voltage (VAC/VDC)	Contact Form	Package Type	No. of Terminals	Part #	Load Current mA	Voltage Withstand (1 min) VAC	On Resistance (typ.) Ω	Output Offstate capacitance (typ.) pF	Leakage Current (typ.) nA	Key Features	Page Number	
20	1 Form A	SOP	4	G3VM-21GR	160	1,500	5	1	0.2	Low CxR	89	
				G3VM-21GR1	300	1,500	1	5	0.2	Low CxR	93	
			6	G3VM-21HR	2,500	1,500	0.02	1000	2	High Current	85	
		SSOP	4	G3VM-21LR	160	1,500	5	1	0.2	Low CxR	231	
				G3VM-21LR1	450	1,500	0.8	5	0.2	Low CxR	235	
				G3VM-21LR10	200	1,500	3	0.8	0.01	Low CxR, Low Leak, Fast On/Off	239	
				G3VM-21LR11	900	1,500	0.18	40	0.2	Low CxR, High Current	243	
40	1 Form A	SOP	4	G3VM-41GR3	80	1,500	25	0.6	0.01	Low CxR, Low Leak	97	
				G3VM-41GR4	250	1,500	2.0	5.0	0.009	Low CxR, Low Leak	101	
				G3VM-41GR5	300	1,500	1	10	0.2	Low CxR	105	
				G3VM-41GR6	120	1,500	10	1	0.2	Low CxR	109	
				G3VM-41GR7	120	1,500	6.5	1.65	0.2	Low CxR	113	
				G3VM-41GR8	1,000	1,500	0.1	300	0.2	High Current	117	
		SSOP	4	G3VM-41LR3	80	1,500	25	0.6	0.2	Low CxR	247	
				G3VM-41LR4	250	1,500	2	5	0.2	Low CxR	251	
				G3VM-41LR5	300	1,500	1	10	0.2	Low CxR	255	
				G3VM-41LR6	120	1,500	10	1	0.2	Low CxR	259	
				G3VM-41LR10	120	1,500	12	0.45	0.01	Low CxR, Low Leak, Fast On/Off	263	
				G3VM-41LR11	140	1,500	7	0.7	0.01	Low CxR, Low Leak, Fast On/Off	267	
				60	1 Form A	DIP	4	G3VM-61A1	500	2,500	1	130
6	G3VM-61B1	500	2,500				1	130	1		15	
	G3VM-61BR	2,500	2,500				0.065	400	1	High Current	19	
SMT	4	G3VM-61D1	500			2,500	1	130	1		11	
	6	G3VM-61E1	500			2,500	1	130	1		15	
		G3VM-61ER	2,500			2,500	0.065	400	1	High Current	19	
SOP	4	G3VM-61G1	400			1,500	1	130	1		121	
		G3VM-61G2	400			1,500	1	130	1	Low LED Trigger	125	
		G3VM-61GR1	1,000			1,500	0.25	90	0.2	High Current	129	
		G3VM-61H1	400			1,500	1	130	1		133	
SSOP	4	G3VM-61LR	400			1,500	1	20	0.04	Low CxR, Low Leak	271	
2 Form A	DIP	8	G3VM-62C1			500	2,500	1	130	1		23
	SMT	8	G3VM-62F1			500	2,500	1	130	1		23
	SOP	8	G3VM-62J1	400	1,500	1	130	1		137		
80	1 Form A	SOP	4	G3VM-81G1	350	1,500	1	30	0.2	Low CxR	141	
				G3VM-81GR	40	1,500	16	2.5	0.5		145	
				G3VM-81GR1	200	1,500	5	6.5	0.5	Low CxR	149	
		6	G3VM-81HR	1,250	1,500	0.11	460	1.2	High Current	153		
		SSOP	4	G3VM-81LR	120	1,500	7.5	5	0.1	Fast On/Off	275	
100	1 Form A	SSOP	4	G3VM-101LR	80	1,500	8	6	0.1	Fast On/Off	279	
200	1 Form A	SOP	4	G3VM-201G	50	1,500	40	15	0.07		161	
				G3VM-201G1	200	1,500	5	90	1	Low LED Trigger	165	
				G3VM-S5	150	1,500	5	100	0.45		157	
	6	G3VM-201H1	200	1,500	5	100	0.35		169			
2 Form A	SOP	8	G3VM-202J1	200	1,500	5	100	3.1		173		

(continued from previous page)

Load Voltage (VAC/VDC)	Contact Form	Package Type	No. of Terminals	Part #	Load Current mA	Voltage Withstand (1 min.) VAC	On Resistance (typ.) Ω	Output Offstate Capacitance (typ.) pF	Leakage Current (typ.) nA	Additional Features	Page Number		
350	1 Form A	DIP	4	G3VM-2L	120	2,500	22	40	0.5	Current Limiting *	31		
				G3VM-351A	120	2,500	35	30	1.5		27		
			6	G3VM-351B	120	2,500	35	30	1.5		39		
		SMT	4	G3VM-2FL	120	2,500	22	40	0.5	Current Limiting *	31		
				G3VM-351D	120	2,500	35	30	1.5		27		
			6	G3VM-351E	120	2,500	35	30	1.5		39		
		SOP	4	G3VM-351G	110	1,500	35	30	1.5		177		
				G3VM-351G1	100	1,500	35	35	1	Low LED Trigger	181		
				G3VM-351GL	120	1,500	15	70	0.5	Current Limiting*	185		
		6	G3VM-351H	110	1,500	35	30	1.8		193			
			2 Form A	DIP	8	G3VM-352C	120	2,500	35	30	1.5		47
						G3VM-WL	120	2,500	22	40	0.5	Current Limiting*	51
	SMT	8	G3VM-352F	120	2,500	35	30	1.5		47			
			G3VM-WFL	120	2,500	22	40	0.5	Current Limiting*	51			
	SOP	8	G3VM-352J	110	1,500	35	30	1.5		201			
	1 Form B	DIP	4	G3VM-353A	150	2,500	15	85	10.5		35		
				G3VM-353A1	100	2,500	30	30	3		35		
			6	G3VM-353B	150	2,500	15	85	10.5		43		
				G3VM-353B1	100	2,500	27	30	3		43		
		SMT	4	G3VM-353D	150	2,500	15	85	10.5		35		
				G3VM-353D1	100	2,500	30	30	3		35		
		SMT	6	G3VM-353E	150	2,500	15	85	10.5		43		
				G3VM-353E1	100	2,500	27	30	3		43		
		SOP	4	G3VM-353G	120	1,500	15	65	10.5		189		
				G3VM-353G1	90	1,500	30	30	3		189		
			6	G3VM-353H	120	1,500	15	65	10.5		197		
				G3VM-353H1	90	1,500	27	30	3		197		
	2 Form B	DIP	8	G3VM-354C	150	2,500	15	85	10.5		55		
				G3VM-354C1	100	2,500	30	30	3		55		
		SMT	8	G3VM-354F	150	2,500	15	85	10.5		55		
				G3VM-354F1	100	2,500	30	30	3		55		
		SOP	8	G3VM-354J	120	1,500	15	65	10.5		211		
				G3VM-354J1	90	1,500	30	30	3		211		
	1 A + 1 B	DIP	8	G3VM-355C	100	2,500	40	30	6 NO, 3 NC		59		
				G3VM-355CR	120	2,500	15	65	1.5 NO, 10.5 NC		59		
		SMT	8	G3VM-355F	100	2,500	40	30	6 NO, 3 NC		59		
				G3VM-355FR	120	2,500	15	65	1.5 NO, 10.5 NC		59		
		SOP	8	G3VM-355J	90	1,500	40	30	6 NO, 3 NC		205		
				G3VM-355JR	120	1,500	15	65	1.5 NO, 10.5 NC		205		
	400	1 Form A	DIP	4	G3VM-401A	120	2,500	18	40	0.8		65	
					G3VM-401B	120	2,500	17	40	0.8		69	
				6	G3VM-401BY	120	5,000	17	40	0.4	High Dielectric	73	
			SMT	4	G3VM-401D	120	2,500	18	40	0.8		65	
					G3VM-401E	120	2,500	17	40	0.8		69	
				6	G3VM-401EY	120	5,000	17	40	0.4	High Dielectric	73	
		SOP	4	G3VM-401G	120	1,500	17	70	3		215		
				G3VM-401H	120	1,500	17	70	3		219		
			6	G3VM-401H	120	1,500	17	70	3		219		
2 Form A		DIP	8	G3VM-402C	120	2,500	18	40	0.8		81		
				G3VM-402F	120	2,500	18	40	0.8		81		
				G3VM-402J	120	1,500	17	70	3		223		
600	1 Form A	DIP	6	G3VM-601BY	100	5,000	30	120	0.5	High Dielectric	77		
				G3VM-601EY	100	5,000	30	120	0.5	High Dielectric	77		
		SOP	4	G3VM-601G	90	1,500	45	75	1	Low LED Trigger	227		

\*Current Limiting Range = 150 to 300 mA

MEMO

A large grid of dashed lines for taking notes, consisting of 20 columns and 30 rows of small squares.

# Omron Electronic Components, LLC

## Terms and Conditions of Sales

### I. GENERAL

- Definitions:** The words used herein are defined as follows.
  - Terms:** These terms and conditions
  - Seller:** Omron Electronic Components LLC and its subsidiaries
  - Buyer:** The buyer of Products, including any end user in section III through VI
  - Products:** Products and/or services of Seller
  - Including:** Including without limitation
- Offer; Acceptance:** These Terms are deemed part of all quotations, acknowledgments, invoices, purchase orders and other documents, whether electronic or in writing, relating to the sale of Products by Seller. Seller hereby objects to any Terms proposed in Buyer's purchase order or other documents which are inconsistent with, or in addition to, these Terms.
- Distributor:** Any distributor shall inform its customer of the contents after and including section III of these Terms.

### II. SALES

- Prices; Payment:** All prices stated are current, subject to change without notice by Seller. Buyer agrees to pay the price in effect at the time the purchase order is accepted by Seller. Payments for Products received are due net 30 days unless otherwise stated in the invoice. Buyer shall have no right to set off any amounts against the amount owing in respect of this invoice.
- Discounts:** Cash discounts, if any, will apply only on the net amount of invoices sent to Buyer after deducting transportation charges, taxes and duties, and will be allowed only if (a) the invoice is paid according to Seller's payment terms and (b) Buyer has no past due amounts owing to Seller.
- Interest:** Seller, at its option, may charge Buyer 1.5% interest per month or the maximum legal rate, whichever is less, on any balance not paid within the stated terms.
- Orders:** Seller will accept no order less than 200 U.S. dollars net billing.
- Currencies:** If the prices quoted herein are in a currency other than U.S. dollars, Buyer shall make remittance to Seller at the then current exchange rate most favorable to Seller; provided that if remittance is not made when due, Buyer will convert the amount to U.S. dollars at the then current exchange rate most favorable to Seller available during the period between the due date and the date remittance is actually made.
- Governmental Approvals:** Buyer shall be responsible for all costs involved in obtaining any government approvals regarding the importation or sale of the Products.
- Taxes:** All taxes, duties and other governmental charges (other than general real property and income taxes), including any interest or penalties thereon, imposed directly or indirectly on Seller or required to be collected directly or indirectly by Seller for the manufacture, production, sale, delivery, importation, consumption or use of the Products sold hereunder (including customs duties and sales, excise, use, turnover and license taxes) shall be charged to and remitted by Buyer to Seller.
- Financial:** If the financial position of Buyer at any time becomes unsatisfactory to Seller, Seller reserves the right to stop shipments or require satisfactory security or payment in advance. If Buyer fails to make payment or otherwise comply with these Terms or any related agreement, Seller may (without liability and in addition to other remedies) cancel any unshipped portion of Products sold hereunder and stop any Products in transit until Buyer pays all amounts, including amounts payable hereunder, whether or not then due, which are owing to it by Buyer. Buyer shall in any event remain liable for all unpaid accounts.
- Cancellation; Etc:** Orders are not subject to rescheduling or cancellation unless Buyer indemnifies Seller fully against all costs or expenses arising in connection therewith.
- Force Majeure:** Seller shall not be liable for any delay or failure in delivery resulting from causes beyond its control, including earthquakes, fires, floods, strikes or other labor disputes, shortage of labor or materials, accidents to machinery, acts of sabotage, riots, delay in or lack of transportation or the requirements of any government authority.
- Shipping; Delivery:** Unless otherwise expressly agreed in writing by Seller:
  - All sales and shipments of Products shall be FOB shipping point (unless otherwise stated in writing by Seller), at which point title to and all risk of loss of the Products shall pass from Seller to Buyer, provided that Seller shall retain a security interest in the Products until the full purchase price is paid by Buyer;
  - Delivery and shipping dates are estimates only; and
  - Seller will package Products as it deems proper for protection against normal handling and extra charges apply to special conditions.
- Claims:** Any claim by Buyer against Seller for shortage or damage to the Products occurring before delivery to the carrier or any claim related to pricing or other charges must be presented in detail in writing to Seller within 30 days of receipt of shipment.

### III. PRECAUTIONS

- Suitability:** IT IS THE BUYER'S SOLE RESPONSIBILITY TO ENSURE THAT ANY OMRON PRODUCT IS FIT AND SUFFICIENT FOR USE IN A MOTORIZED VEHICLE APPLICATION. BUYER SHALL BE SOLELY RESPONSIBLE FOR DETERMINING APPROPRIATENESS OF THE PARTICULAR PRODUCT WITH RESPECT TO THE BUYER'S APPLICATION INCLUDING (A) ELECTRICAL OR ELECTRONIC COMPONENTS, (B) CIRCUITS, (C) SYSTEM ASSEMBLIES, (D) END PRODUCT, (E) SYSTEM, (F) MATERIALS OR SUBSTANCES OR (G) OPERATING ENVIRONMENT. Buyer acknowledges that it alone has determined that the Products will meet their requirements of the intended use in all cases. Buyer must know and observe all prohibitions of use applicable to the Product/s.
- Use with Attention:** The followings are some examples of applications for which particular attention must be given. This is not intended to be an exhaustive list of all possible use of any Product, nor to imply that any use listed may be suitable for any Product:
  - Outdoor use, use involving potential chemical contamination or electrical interference.

- Use in consumer Products or any use in significant quantities.
  - Energy control systems, combustion systems, railroad systems, aviation systems, medical equipment, amusement machines, vehicles, safety equipment, and installations subject to separate industry or government regulations.
  - Systems, machines, and equipment that could present a risk to life or property.
- Prohibited Use:** NEVER USE THE PRODUCT FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY WITHOUT ENSURING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO ADDRESS THE RISKS, AND THAT THE PRODUCT IS PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.
  - Motorized Vehicle Application:** USE OF ANY PRODUCT/S FOR A MOTORIZED VEHICLE APPLICATION MUST BE EXPRESSLY STATED IN THE SPECIFICATION BY SELLER.
  - Programmable Products:** Seller shall not be responsible for the Buyer's programming of a programmable Product.

### IV. WARRANTY AND LIMITATION

- Warranty:** Seller's exclusive warranty is that the Products will be free from defects in materials and workmanship for a period of twelve months from the date of sale by Seller (or such other period expressed in writing by Seller). SELLER MAKES NO WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, ABOUT ALL OTHER WARRANTIES, NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OF THE PRODUCTS.
- Buyer Remedy:** Seller's sole obligation hereunder shall be to replace (in the form originally shipped with Buyer responsible for labor charges for removal or replacement thereof) the non-complying Product or, at Seller's election, to repay or credit Buyer an amount equal to the purchase price of the Product; provided that there shall be no liability for Seller or its affiliates unless Seller's analysis confirms that the Products were correctly handled, stored, installed and maintained and not subject to contamination, abuse, misuse or inappropriate modification. Return of any Products by Buyer must be approved in writing by Seller before shipment.
- Limitation on Liability:** SELLER AND ITS AFFILIATES SHALL NOT BE LIABLE FOR SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES, LOSS OF PROFITS OR PRODUCTION OR COMMERCIAL LOSS IN ANY WAY CONNECTED WITH THE PRODUCTS, WHETHER SUCH CLAIM IS BASED IN CONTRACT, WARRANTY, NEGLIGENCE OR STRICT LIABILITY. FURTHER, IN NO EVENT SHALL LIABILITY OF SELLER OR ITS AFFILIATES EXCEED THE INDIVIDUAL PRICE OF THE PRODUCT ON WHICH LIABILITY IS ASSERTED.
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- Change In Specifications:** Product specifications and descriptions may be changed at any time based on improvements or other reasons. It is Seller's practice to change part numbers when published ratings or features are changed, or when significant engineering changes are made. However, some specifications of the Product may be changed without any notice.
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