

Product Overview

Line Up of MOS FET Relay Module

T-Module

1 pA max. leakage current
contributes to high device reliability.

High Isolation

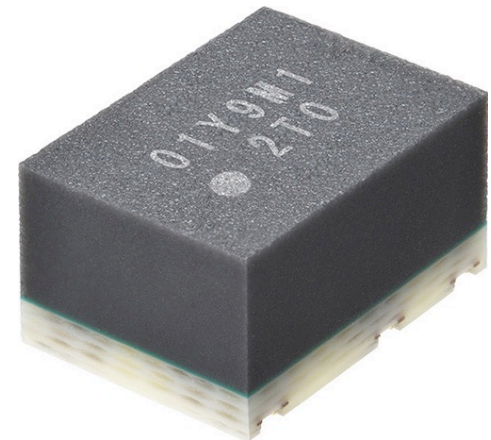
G3VM-21MT

High Current

G3VM-61MT

High Voltage

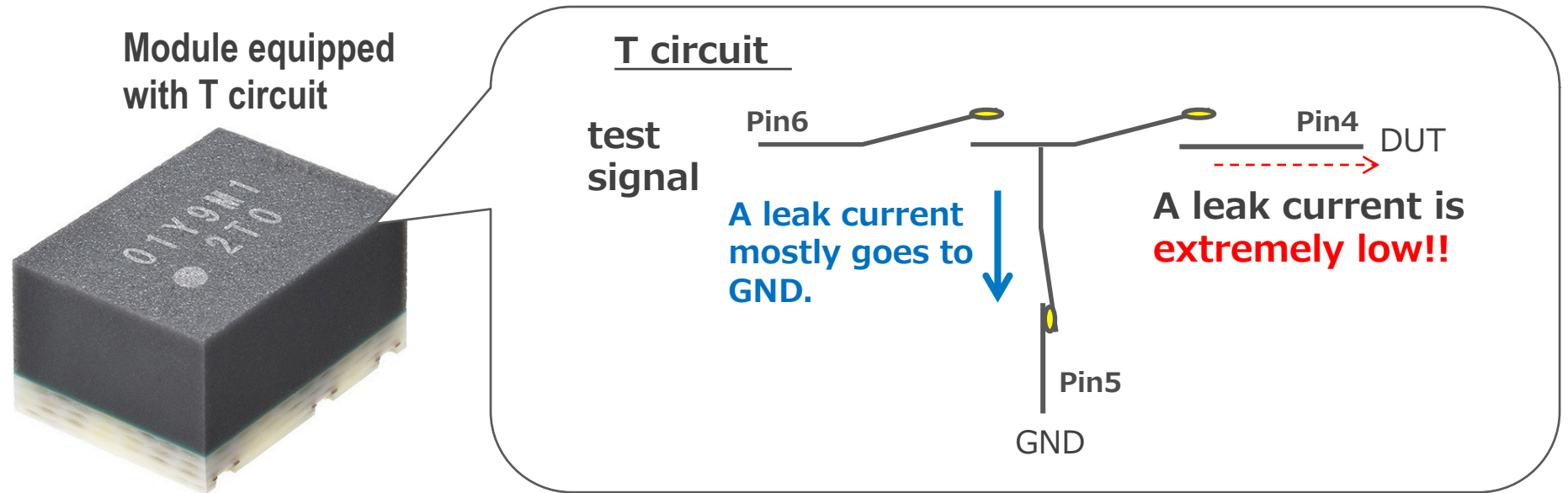
G3VM-101MT



OMRON

What's New?

G3VM-MT series has an unique 3-MOS FET structure (T-module) which greatly suppresses leakage current.



Remarkable performance

Leakage current \leq **1pA**

*Actual value is 0.1pA

Offer Value

1. Higher Accuracy

⇒ Achieves **extremely low leakage current of 1pA or less**, which was difficult with traditional MOS relays, improving the measurement accuracy of equipment. Maintains test performance comparable to reed relays.*

2. Longer Lifetime

⇒ **Reduces frequency of relay maintenance** with makeup of semiconductors with no physical contacts.

3. Space Saving

⇒ **Contributes to both space saving and high integration** with placing 3 relay circuits in one very small package. This enables having multiple functions and channels for equipment.

* According to a survey by OMRON Corporation in May 2021

Overview of T-Module (Performance)

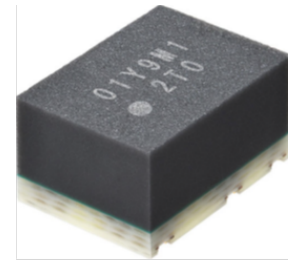
T-module offers excellent specs of low leakage current and isolation with keeping excellent reliability and endurance spec.

Performance comparison with other relays

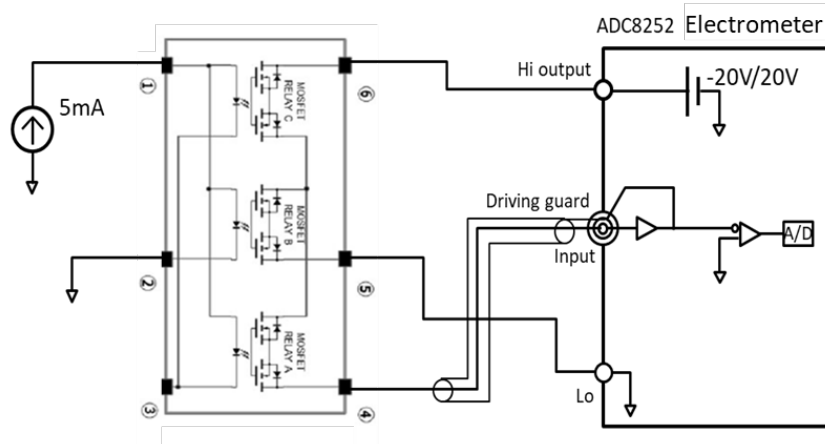
	Reed Relay	Mechanical Relay	MOSFET Relay	G3VM-MT (T-Module)
RELIABILITY	Poor	Poor	Excellent	Excellent
ENDURANCE	Good	Poor	Excellent	Excellent
LEAKAGE CURRENT	Excellent	Excellent	Bad	Excellent
ISOLATION	Excellent	Excellent	Bad	Excellent

Leakage Current Actual Performance

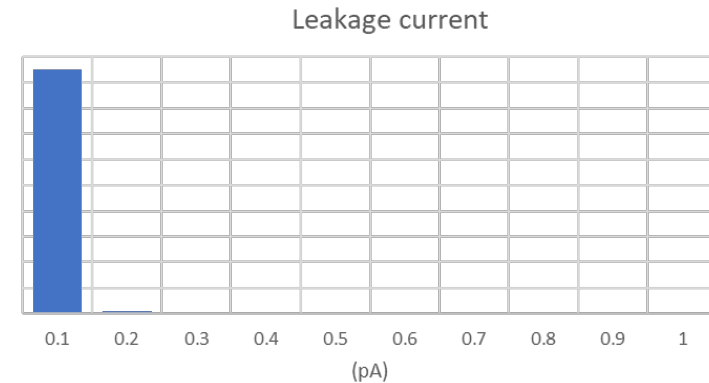
Extreme low leakage and suitable for high accuracy signal switching.



Measurement circuit



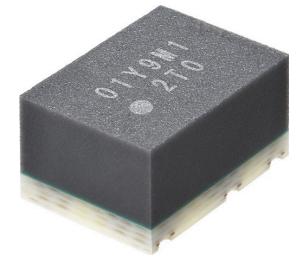
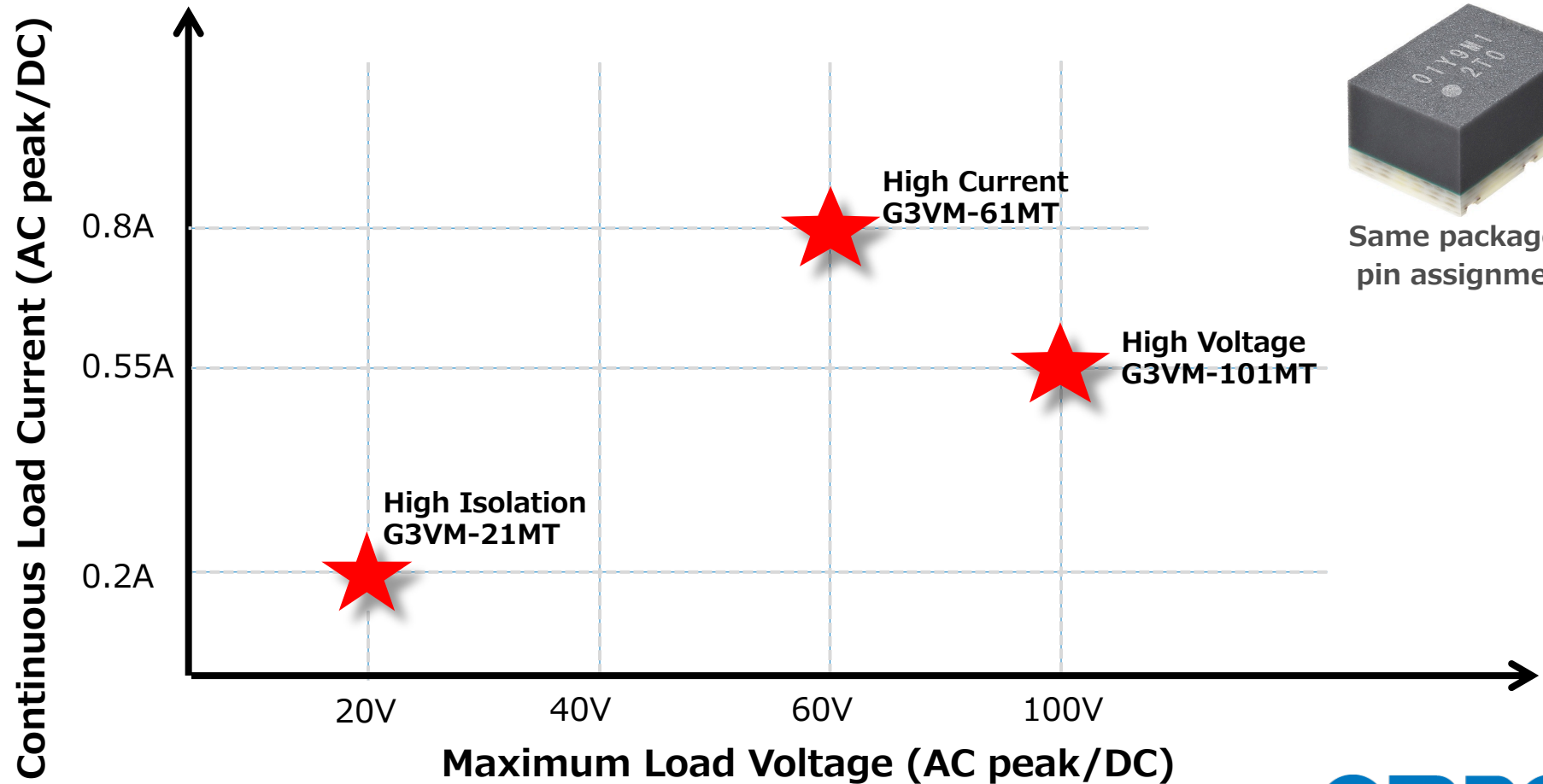
Measurement result (N=96)



Product MAP of T-Module

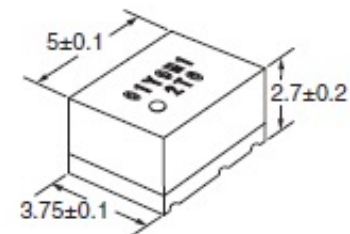
3 types are in product family.

High isolation, high current and high voltage types.



Same package/
pin assignment

Product Specifications

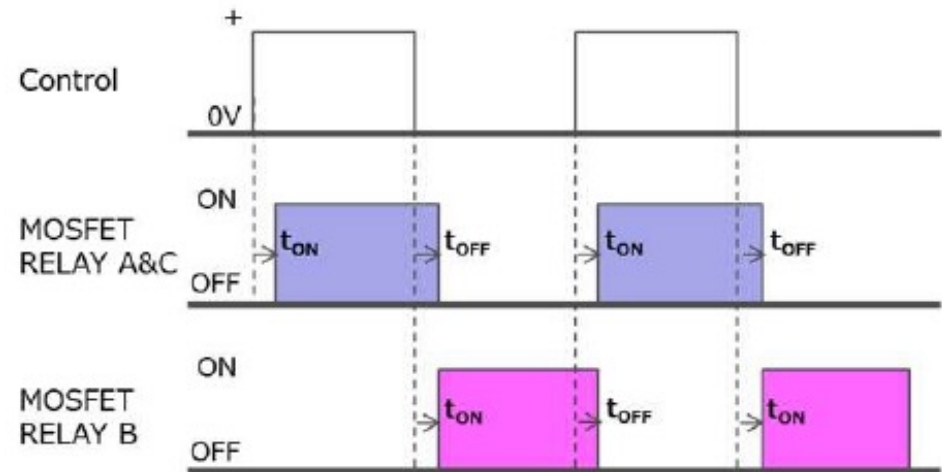
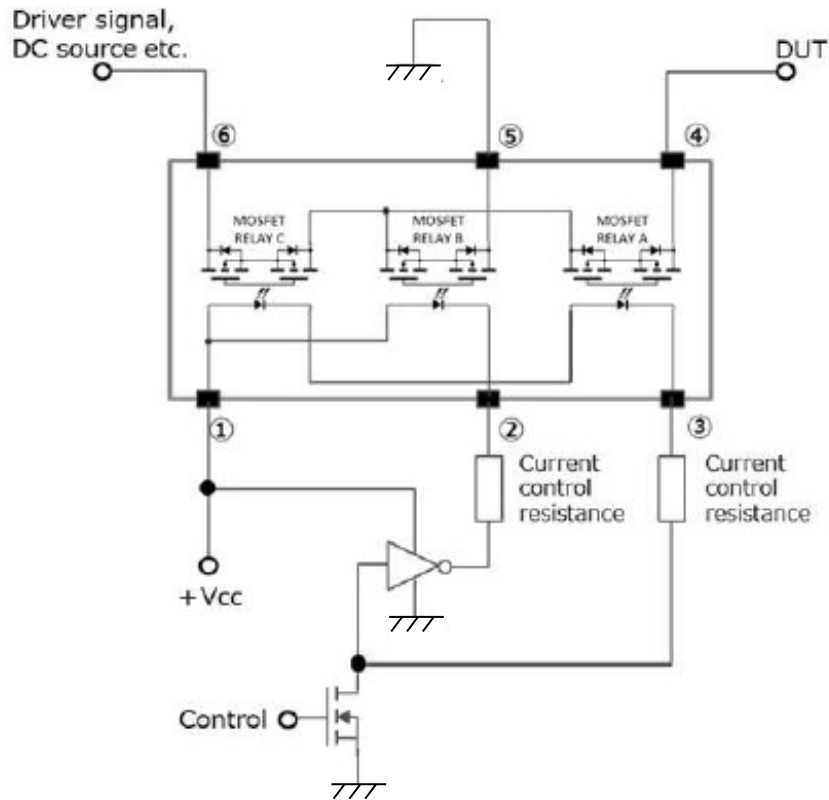


Type	G3VM-21MT	G3VM-61MT	G3VM-101MT
	High Isolation	High Current	High Voltage
Load voltage max.	20V	60V	100V
Continuous load current max.	200mA	800mA	550mA
Maximum resistance with output ON typ.	8Ω	0.4Ω	0.8Ω
Capacitance between output terminals typ.	0.6pF	38pF	23pF
Trigger LED forward current max.	3mA at 25°C		
Turn-ON time Max. / Turn-OFF time max.	Main & Sub: 0.3ms/0.3ms	Main: 2.5ms/0.5ms Sub: 1ms/0.5ms	Main & Sub: 2.5ms/2.5ms
Leakage current max.*	1pA		
Dielectric strength between I/O (AC for 1 min)	500Vrms		
Ambient operating temperature	-40~+110°C		

*At status of main line OFF and sub line ON. V_{OFF} : 21MT=20V, 61MT=50V, 101MT=80V

Operations

Circuit example/ timing chart



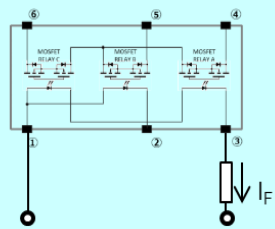
※This product is recommended to use with dry switching (No Load & No Source when switching) to prevent short circuit happening.

T-Module Workings and Usage Example

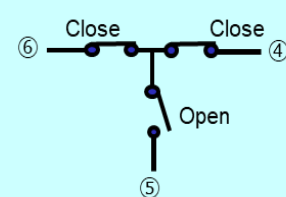
Workings

ON status

Control for input(LED) side

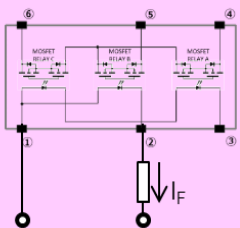


Output (MOSFET) status in module

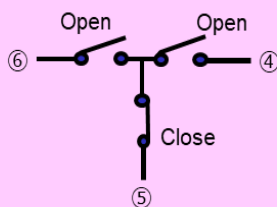


OFF status

Control for input(LED) side

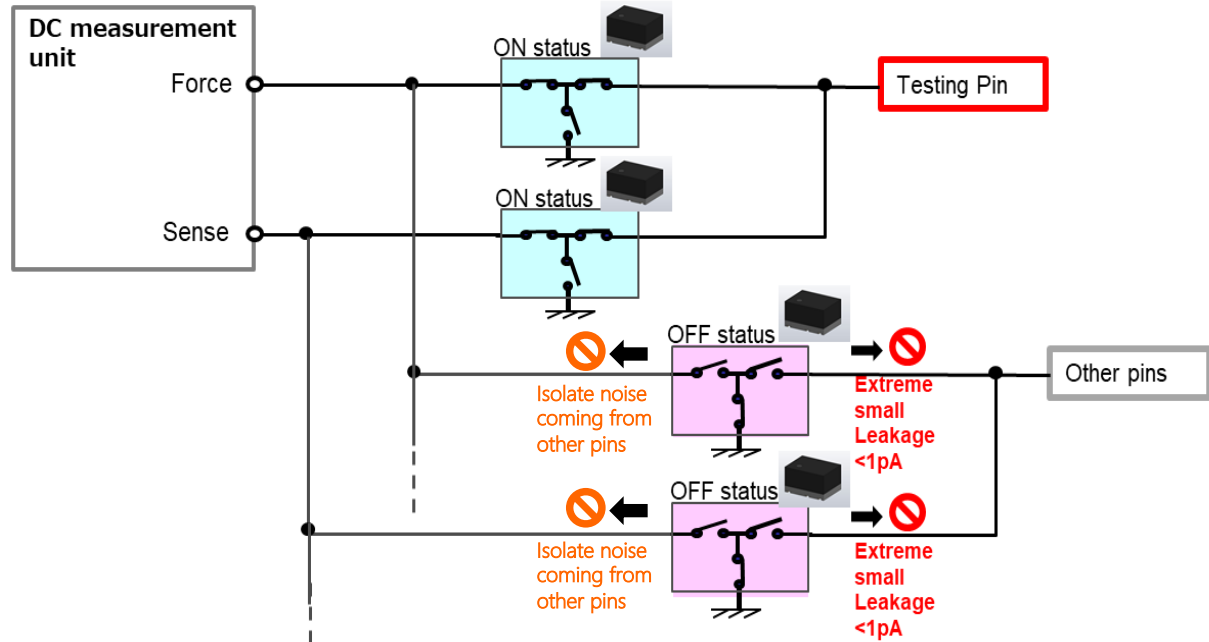


Output (MOSFET) status in module



Usage Example

DC testing line switching





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