

# New Product Information

## New line up of T-module

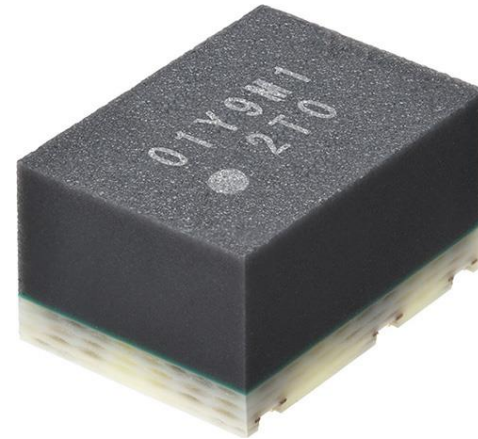
1 pA max. leakage current  
contributes to high device reliability.

High Current

**G3VM-61MT**

High Voltage

**G3VM-101MT**

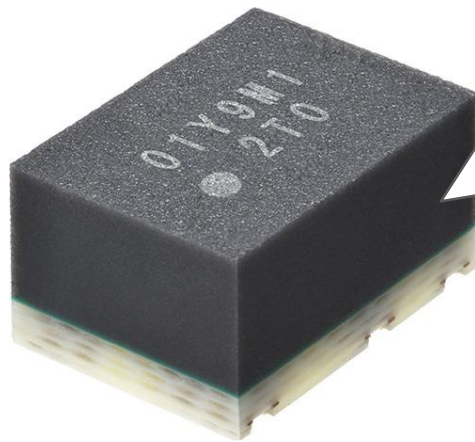


**NEW**

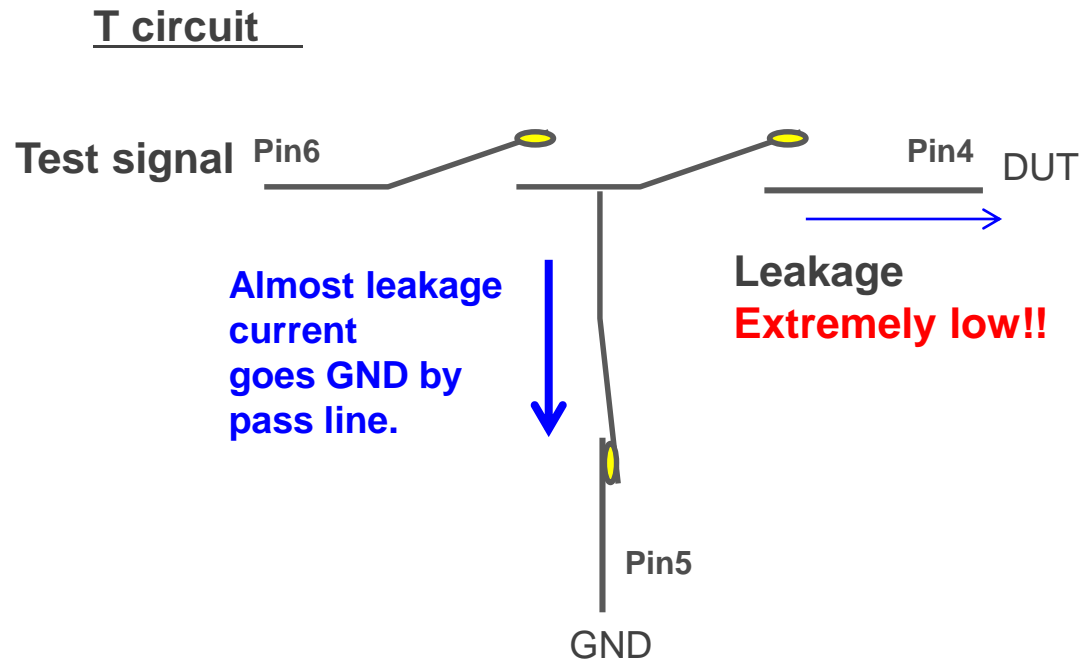
**OMRON**

# Overview of T-module

Reduces the leakage current that affects the measurement accuracy of test equipment.



Module equipped with T circuit



# Offer Value

## 1. Higher Accuracy

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

## 2. Longer Lifetime

⇒ Reduces frequency of relay maintenance by utilizing semiconductor componentry 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's ( Performance )

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

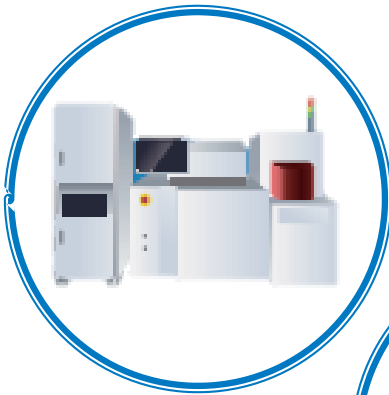
## Performance comparison with other relays

	Reed Relay	Mechanical Relay	MOSFET Relay	T-module
RELIABILITY	Poor	Poor	Excellent	Excellent
ENDURANCE	Good	Poor	Excellent	Excellent
LEAKAGE CURRENT	Excellent	Excellent	Bad	Excellent
ISOLATION	Excellent	Excellent	Bad	Excellent

# Target Application

## Target equipment

Semiconductor  
Wafer test system



In-circuit  
tester



General  
tester



IC test system

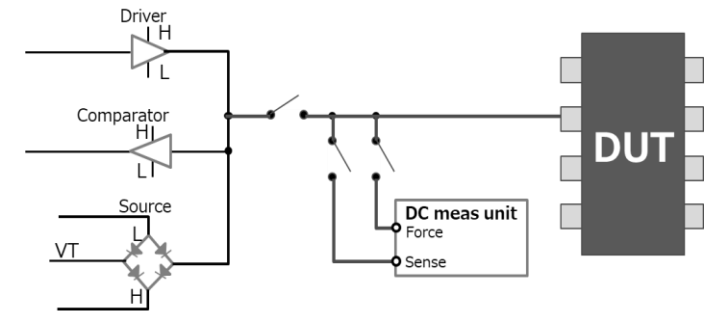


Inline test  
equipment

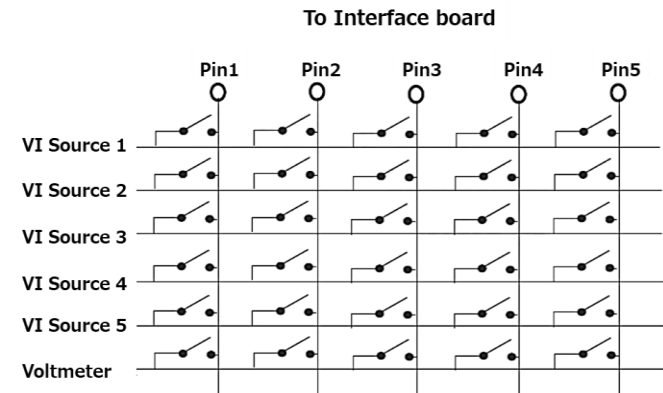


## Target usage

Pin electronics  
DC test signal switching



Matrix switch



# Leakage Current Performance

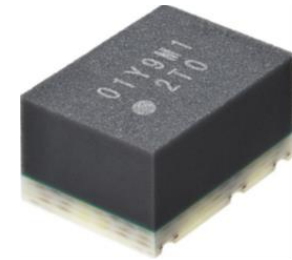
T-module minimizes the leakage current which is a weak point of semiconductors.

Achieved low leakage current of 1 pA or less.

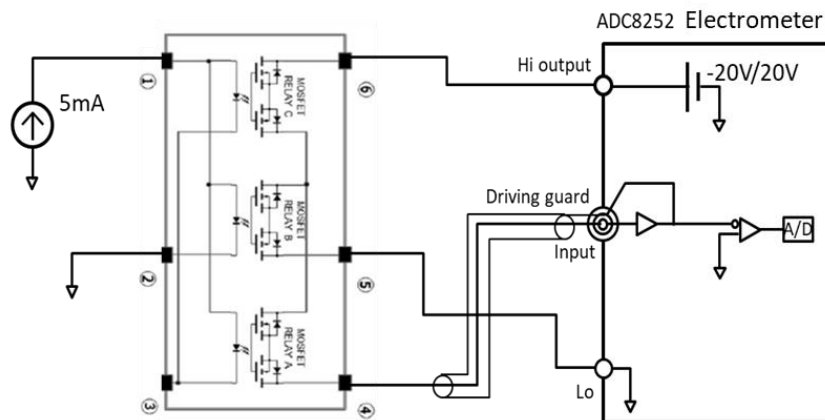
$$\text{Leakage current} \leq 1 \text{ pA}$$

# Leakage Current Actual Performance

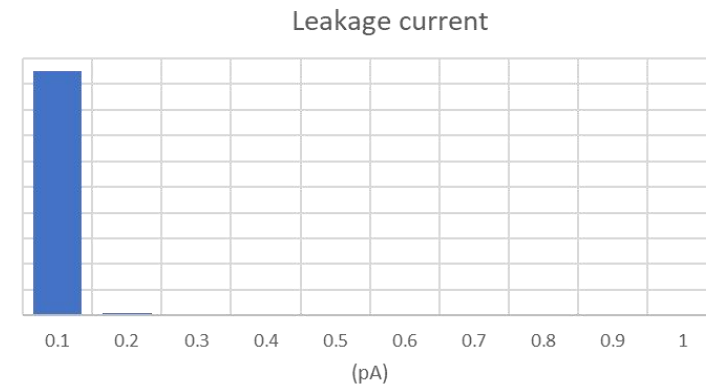
Extreme low leakage and suitable for high accuracy signal switching



Measurement circuit



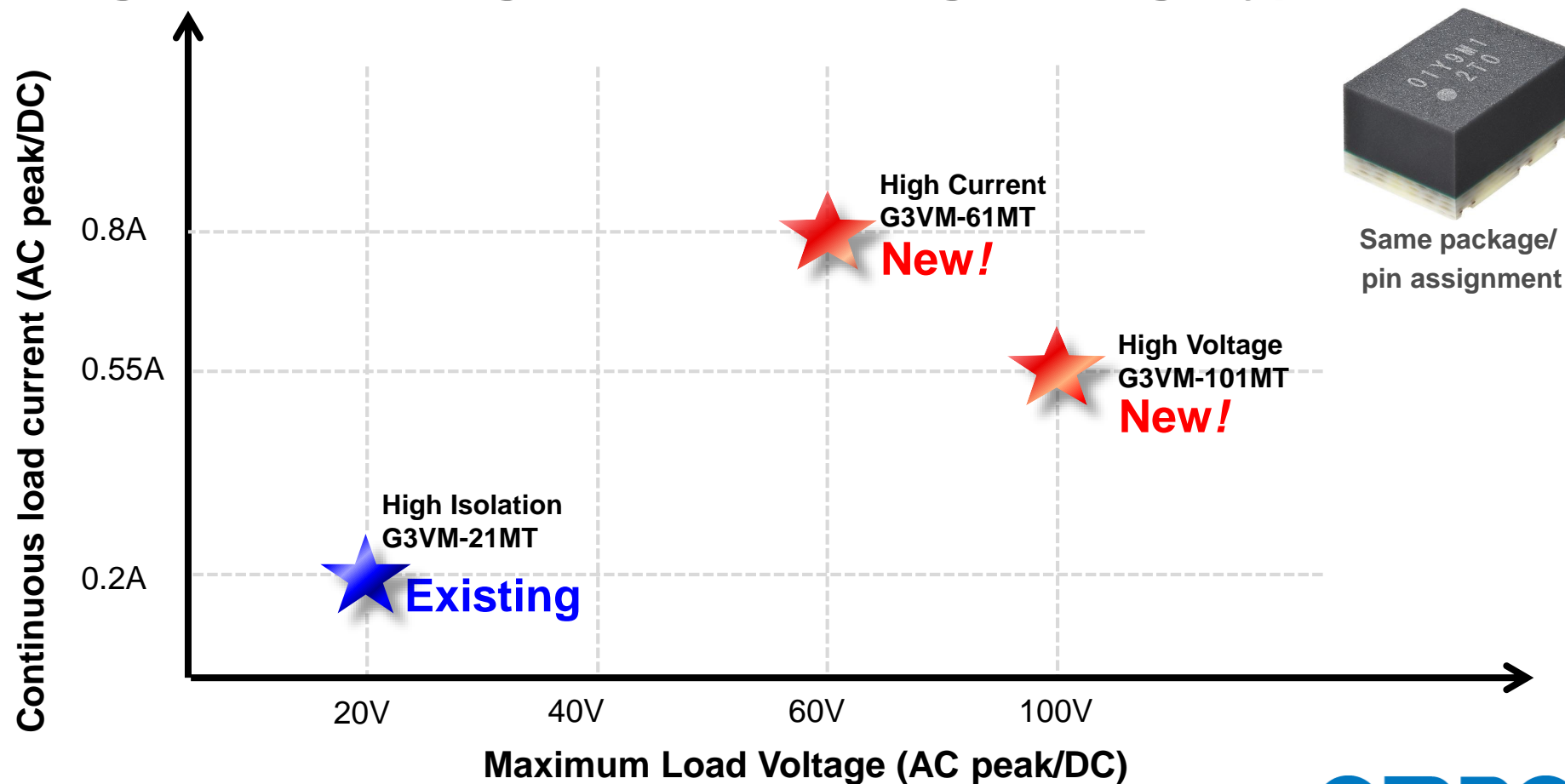
Measurement result (N=96)



# Product MAP of T-module

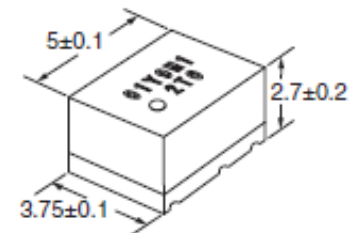
3 types are in products family.

High isolation, high current and high voltage types.





# Main Specification of T-module



**New!**

**New!**

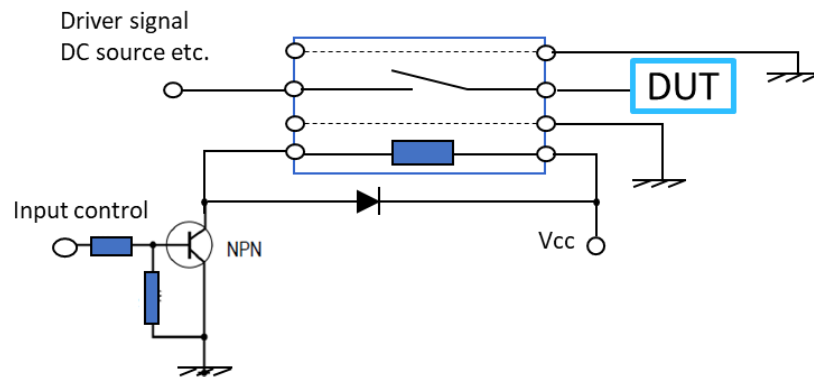
Type	G3VM-21MT	G3VM-61MT	G3VM-101MT
	High Isolation	High Current	High Voltage
Load voltage max.	20V	60V	100V
Continuous load current max.	200mA	800mA	550mA
Maximum Resistance with Output ON typ.	8Ω	0.4Ω	0.8Ω
Capacitance between output terminals Typ.	0.6pF	38pF	23pF
Trigger LED forward current Max.	3mA 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

# Replacement example



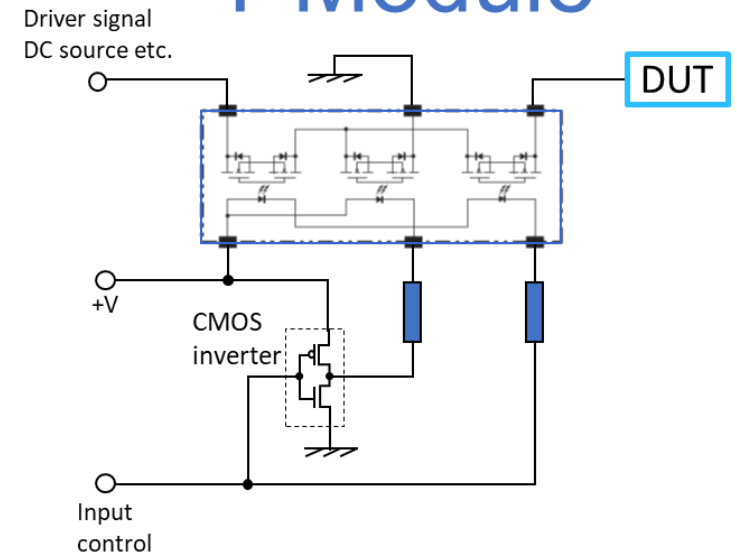
Electro-mechanical / Reed relay (SPST)



Can be replaced

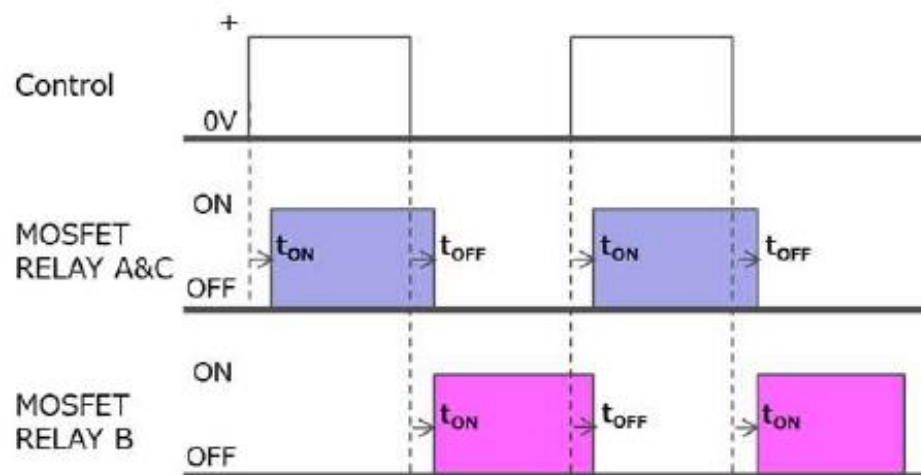
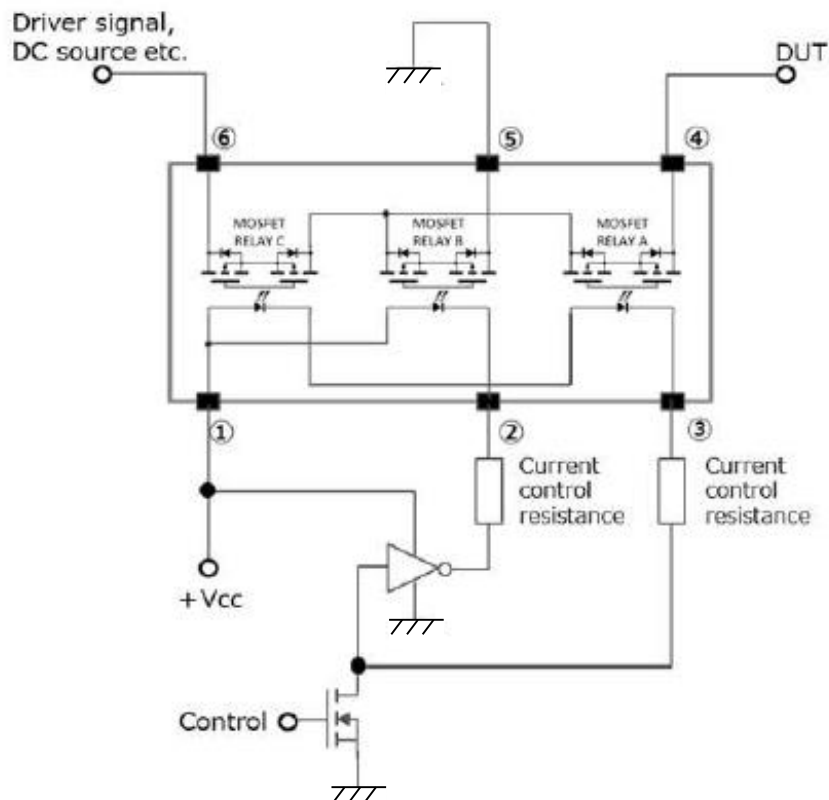


## T Module



# Operations

## Circuit example/ timing chart



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

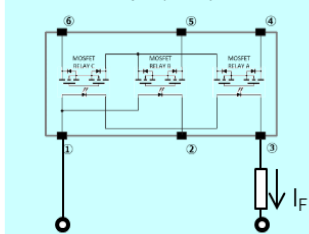
# T-module Operation and Usage example

## T-module can be replaced from reed relay

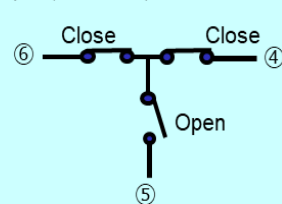
### Workings

#### ON status

##### Control for input(LED) side

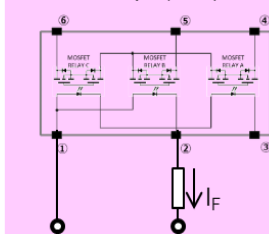


##### Output (MOSFET) status in module

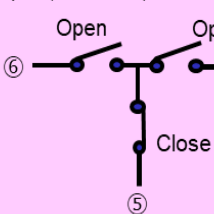


#### OFF status

##### Control for input(LED) side

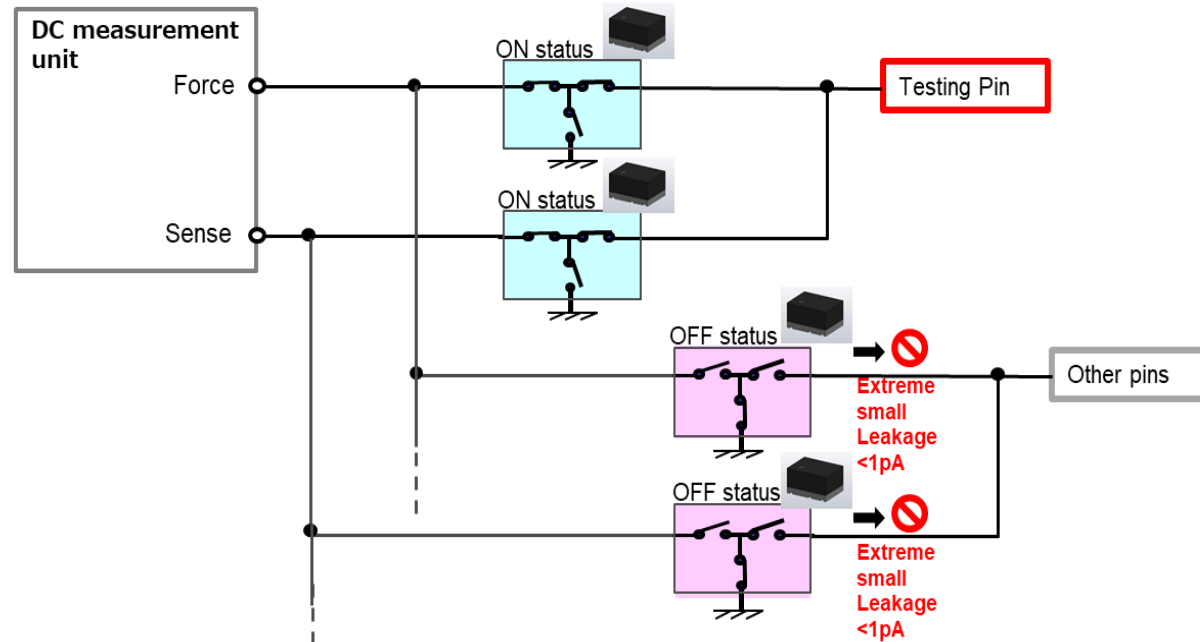


##### Output (MOSFET) status in module



### Usage Example

#### DC testing line switching





# Thank You

Please visit our website for more detail

<https://components.omron.com/product-detail?partNumber=G3VM-21MT>