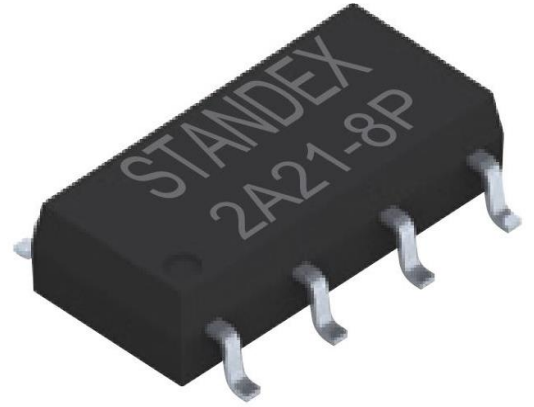


21 Series Photo-MOSFET Relay

- **Features:** Low Capacitance Photo MOSFET Relay, switching up to 40V DC or Peak AC
- **SOP;** Low Off-State Leakage Current; Low Output Capacitance; UL listed
- **Applications:** Automatic Test Equipment, I/O Modules, Telephone Equipment
- **Markets:** Telecommunication, Test & Measurement, Security



Part Description: **SMP-XA21-XPX-X**

| Number of Poles | Contact Form | Series Number | Number of Pins | Mounting Type | Package Style | Special Features |
|-----------------|--------------|---------------|----------------|---------------|---------------|------------------|
| 1, 2 | A | 21 | 4, 8 | P | Tube, Reel | Nil |

See page 5 for Glossary

Maximum Ratings @ Ambient Temperature = 25°C

| Parameters | Symbol | Value | | Units | Condition |
|-------------------------------|------------|----------|----------|---------------|------------------------|
| | | 1A21-4P | 1A21-8P | | |
| INPUT SPECIFICATIONS | | | | | |
| Continuous LED Current | I_F | 50 | 50 | mA | - |
| Peak LED Current | I_{FP} | 500 | 5 | mA | f=100Hz, 1% Duty Cycle |
| LED Reverse Voltage | V_R | 5 | 500 | V | - |
| Input Power Dissipation | P_{IN} | 75 | 75 | mW | - |
| OUTPUT SPECIFICATIONS | | | | | |
| Load Voltage | V_L | 40 | 40 | DC or Peak AC | - |
| Load Current | I_L | 250 | 250 | mA | - |
| Peak Load Current | I_{PEAK} | 750 | 750 | mA | 1 ms, 1 shot |
| Output Power Dissipation | P_{OUT} | 300 | 400 | mW | - |
| GENERAL SPECIFICATIONS | | | | | |
| Total Power Dissipation | P_T | 350 | 450 | mW | - |
| I/O Breakdown Voltage | $V_{I/O}$ | 1500 | 1500 | V_{RMS} | - |
| Operating Temperature | T_{OPR} | -40/+85 | -40/+85 | °C | - |
| Storage Temperature | T_{STG} | -40/+100 | -40/+100 | °C | - |



RoHS

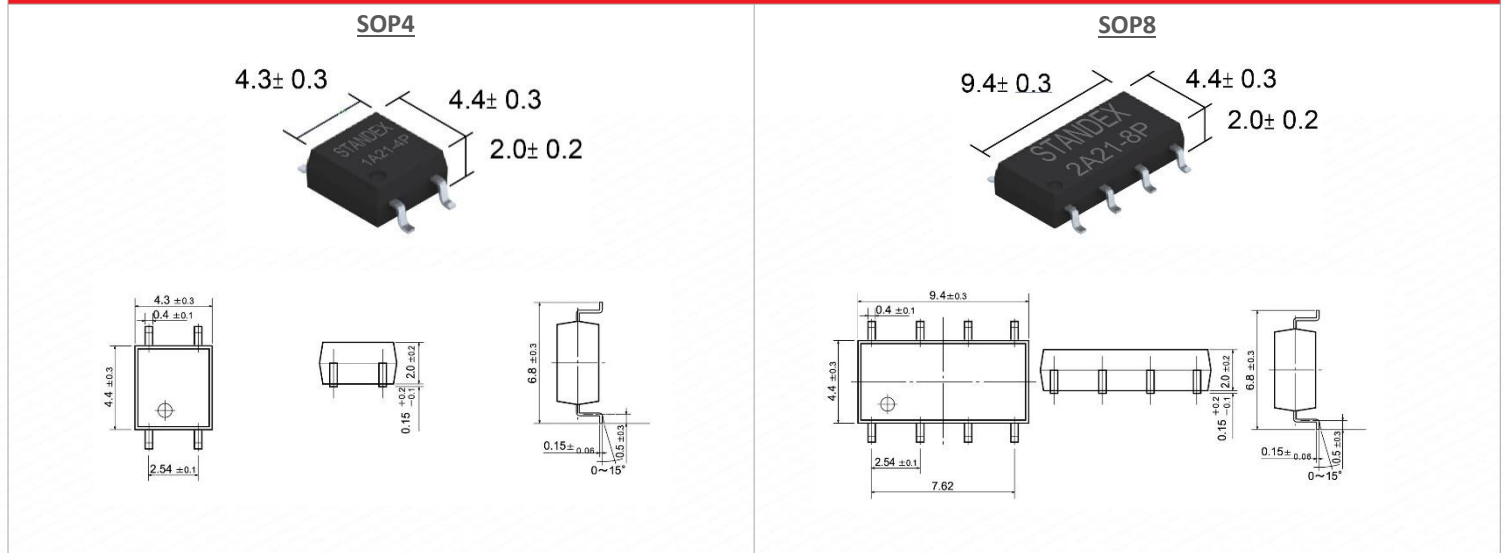
REACH
COMPLIANT

21 Series Photo-MOSFET Relay

Maximum Ratings @ Ambient Temperature = 25°C

| Parameters | Symbol | Min | Typ | Max | Units | Condition |
|------------------------------------|--------------------|--------|------|-----|----------------|---|
| INPUT SPECIFICATIONS | | | | | | |
| LED Forward Voltage | V_F | 1.0 | 1.17 | 1.5 | V | $I_F = 10\text{mA}$ |
| Operation LED Current | $I_{F\text{ ON}}$ | - | 0.3 | 3.0 | mA | - |
| Recovery LED Voltage | $V_{F\text{ OFF}}$ | 0.5 | 1.0 | - | V | - |
| OUTPUT SPECIFICATIONS | | | | | | |
| On Resistance: Drain to Drain | R_{ON} | - | 0.9 | 1.2 | Ω | $I_F = 5\text{mA}, I_L = \text{Rating (within 1 sec.)}$ |
| Off-State Leakage Current | I_{LEAK} | - | 0.03 | 10 | nA | $V_L = 40\text{V}$ |
| Output Capacitance | C_{OUT} | - | 13 | - | ρF | $V_L = 0\text{V}, f = 1\text{MHz}$ |
| TRANSMISSION SPECIFICATIONS | | | | | | |
| Turn-On Time | T_{ON} | - | 0.07 | 5.0 | ms | $I_F = 5\text{mA}, I_L = \text{Rating}$ |
| Turn-Off Time | T_{OFF} | - | 0.06 | 0.2 | ms | |
| COUPLED SPECIFICATIONS | | | | | | |
| I/O Insulation Resistance | $R_{\text{I/O}}$ | 10^9 | - | - | Ω | - |
| I/O Capacitance | $C_{\text{I/O}}$ | - | 0.8 | - | ρF | $f = 1\text{MHz}$ |

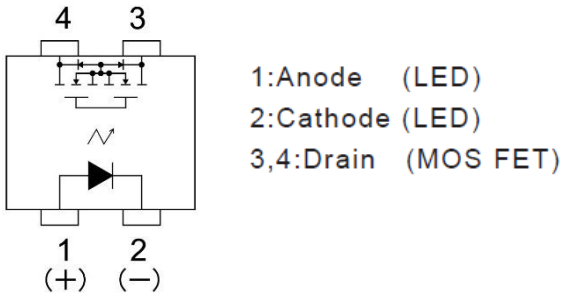
Photo-MOSFET Relay Dimensions (Tolerances acc. to ISO 2768-mp)



21 Series Photo-MOSFET Relay

Photo-MOSFET Relay Pin-Out

4-PIN



8-PIN

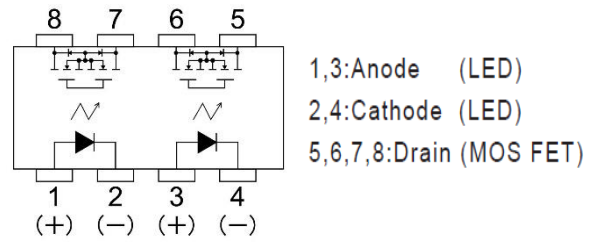
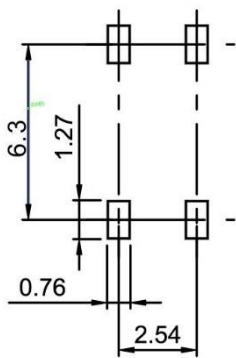
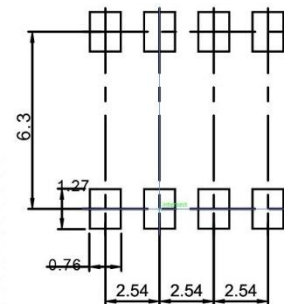


Photo MOSFET Relay Recommended PCB Pad Layout (Tolerances acc. to ISO 2768-mp)

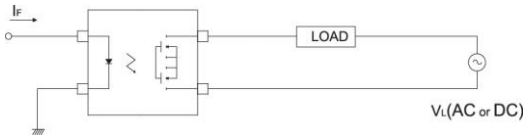
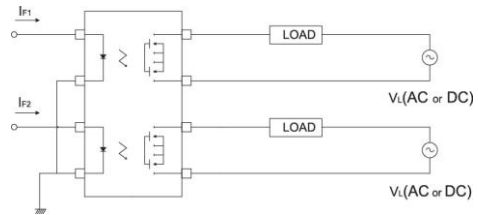
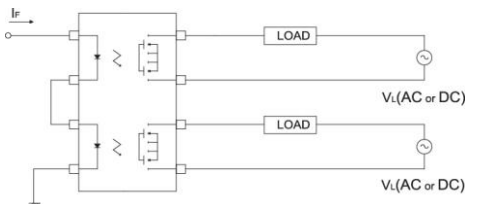
SOP4 (Top View)



SOP8 (Top View)

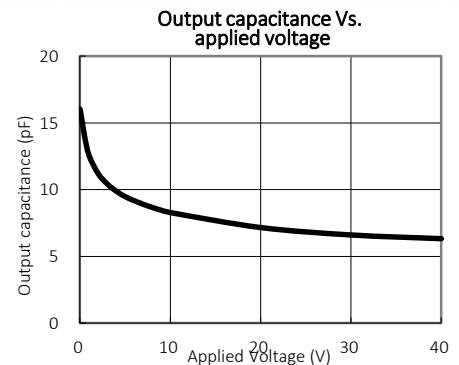
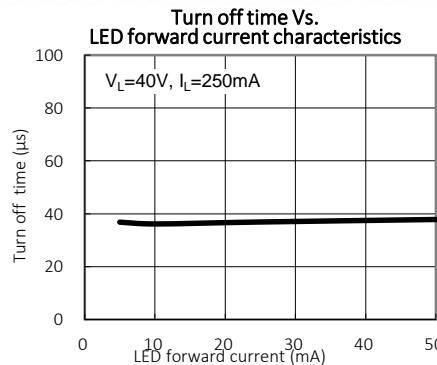
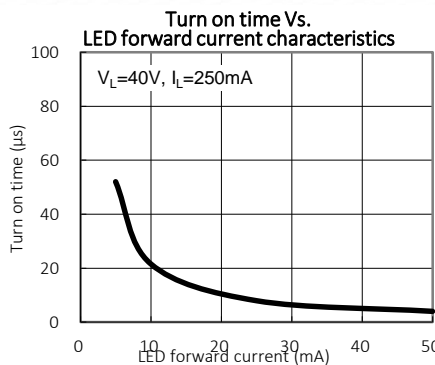
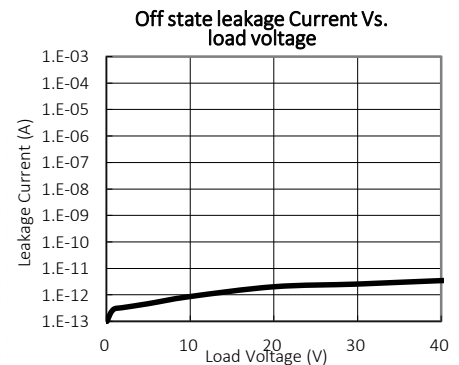
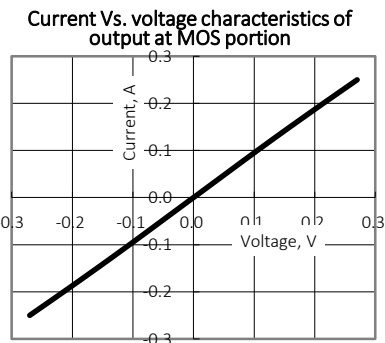
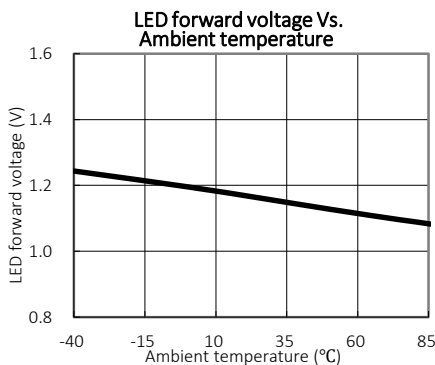
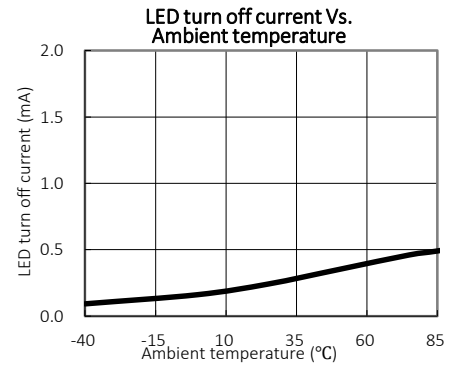
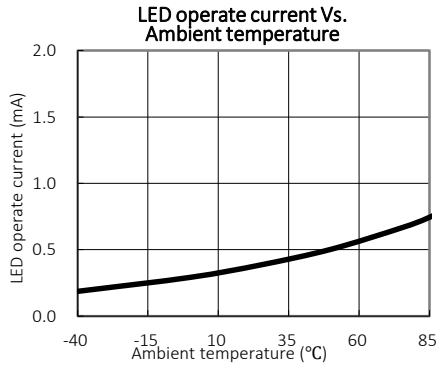
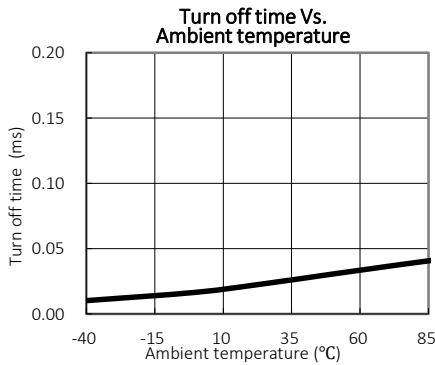
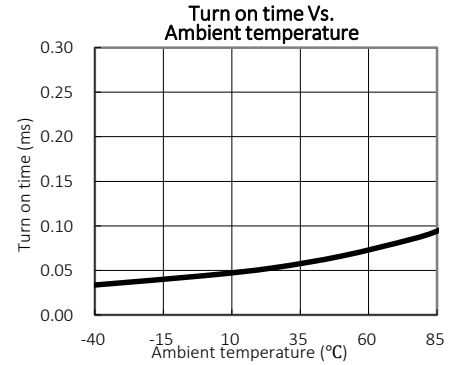
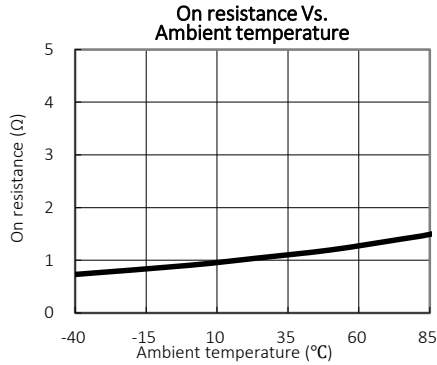
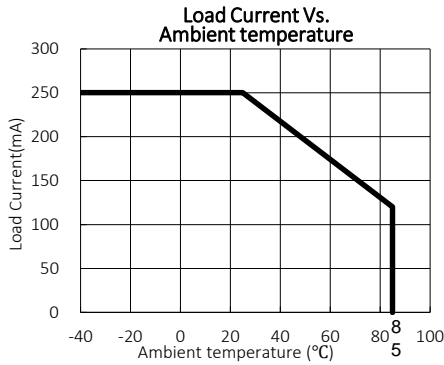


21 Series Photo-MOSFET Relay

| Photo-MOSFET Relay Load Connection Method | | | |
|---|----------|--|-------------------------------|
| TYPE | LOAD | CONNECTION | FEATURE |
| 4-PIN | AC OR DC |  | Control bi-directional signal |
| 8-PIN | AC OR DC |  | 2 inputs and 2 outputs |
| | |  | 1 input and 2 outputs |

21 Series Photo-MOSFET Relay

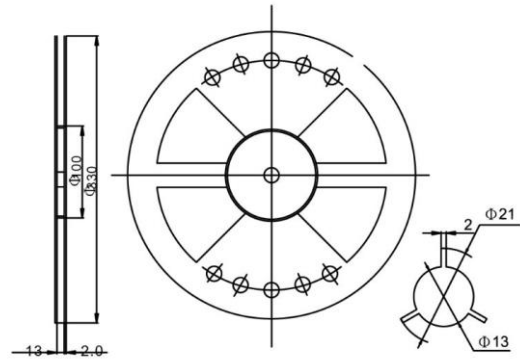
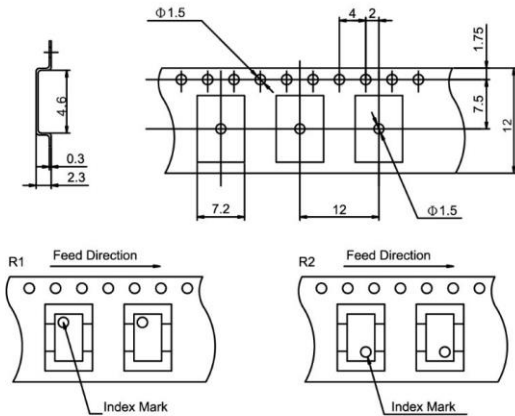
Photo MOSFET Relay Reference Data



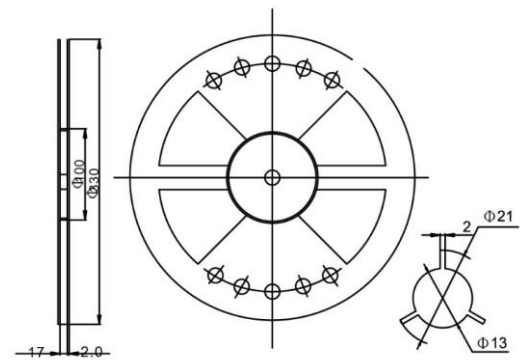
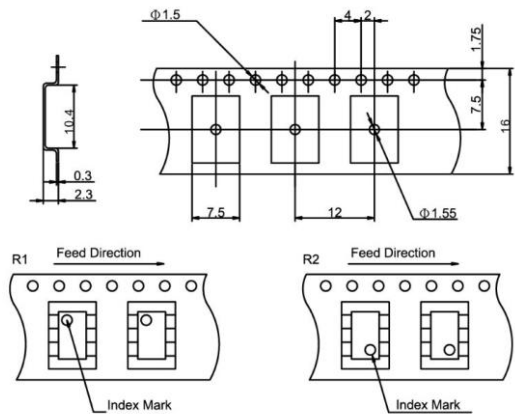
21 Series Photo-MOSFET Relay

Photo MOSFET Relay Tape & Reel Packaging (1,000 pcs per reel)

SOP4



SOP8



Glossary Options

| | |
|---|-----------------------------|
| D | DIP (Dual-In-Line Package) |
| S | SMD (Surface Mount Design) |
| P | SOP (Small-Outline Package) |
| Q | AEC-Q101 / High Temperature |
| R | Reinforced Isolation |

Please note: All technical specifications in this series datasheet refer to the standard product range. Modifications in the sense of technical progress are reserved. For general information only. For more specific information, please consult the product datasheet, available upon request.

This series datasheet could contain technical inaccuracies or typographical errors. Changes are periodically made to the information herein. These changes will be incorporated in future revisions.

For deviating values, latest specifications and product details, please contact your nearest sales office.