



ATP602 — N-Channel Silicon MOSFET

General-Purpose Switching Device

Applications

Features

- ON-resistance $R_{DS(on)}=2.1\Omega$ (typ.)
- 10V drive
- Input capacitance $C_{iss}=350pF$ (typ.)
- Halogen free compliance

Specifications

Absolute Maximum Ratings at $T_a=25^\circ C$

| Parameter | Symbol | Conditions | Ratings | Unit |
|------------------------------------|-----------|---|-------------|------------|
| Drain-to-Source Voltage | V_{DSS} | | 600 | V |
| Gate-to-Source Voltage | V_{GSS} | | ± 30 | V |
| Drain Current (DC) | I_D | | 5 | A |
| Drain Current (Pulse) | I_{DP} | $PW \leq 10\mu s$, duty cycle $\leq 1\%$ | 15 | A |
| Allowable Power Dissipation | P_D | $T_c=25^\circ C$ | 70 | W |
| Channel Temperature | T_{ch} | | 150 | $^\circ C$ |
| Storage Temperature | T_{stg} | | -55 to +150 | $^\circ C$ |
| Avalanche Energy (Single Pulse) *1 | E_{AS} | | 74 | mJ |
| Avalanche Current *2 | I_{AV} | | 5 | A |

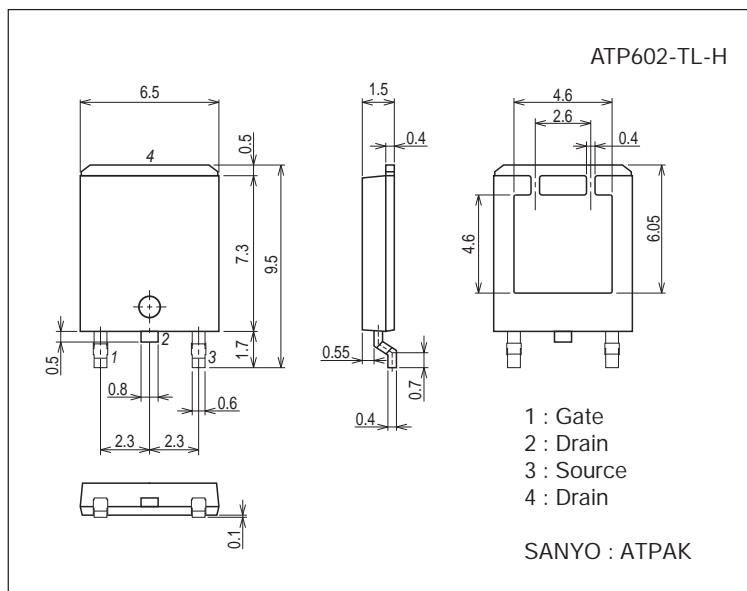
Note : *1 $V_{DD}=99V$, $L=5mH$, $I_{AV}=5A$ (Fig.1)

*2 $L \leq 5mH$, Single pulse

Package Dimensions

unit : mm (typ)

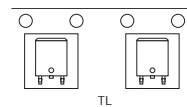
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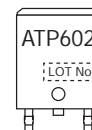
Product & Package Information

- Package : ATPAK
- JEITA, JEDEC : -
- Minimum Packing Quantity : 3,000 pcs./reel

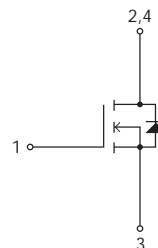
Packing Type: TL



Marking



Electrical Connection



ATP602

Electrical Characteristics at $T_a=25^\circ\text{C}$

| Parameter | Symbol | Conditions | Ratings | | | Unit | |
|--|---------------|--|-----------|------|-----------|---------------|----|
| | | | min | typ | max | | |
| Drain-to-Source Breakdown Voltage | $V_{(BR)DSS}$ | $I_D=10\text{mA}, V_{GS}=0\text{V}$ | 600 | | | V | |
| Zero-Gate Voltage Drain Current | I_{DSS} | $V_{DS}=480\text{V}, V_{GS}=0\text{V}$ | | | 100 | μA | |
| Gate-to-Source Leakage Current | I_{GSS} | $V_{GS}=\pm 30\text{V}, V_{DS}=0\text{V}$ | | | ± 100 | nA | |
| Cutoff Voltage | $V_{GS(off)}$ | $V_{DS}=10\text{V}, I_D=1\text{mA}$ | 3 | | 5 | V | |
| Forward Transfer Admittance | $ y_{fs} $ | $V_{DS}=10\text{V}, I_D=2.5\text{A}$ | 1.5 | 2.9 | | S | |
| Static Drain-to-Source On-State Resistance | $R_{DS(on)}$ | $I_D=2.5\text{A}, V_{GS}=10\text{V}$ | | 2.1 | 2.7 | Ω | |
| Input Capacitance | C_{iss} | $V_{DS}=30\text{V}, f=1\text{MHz}$ | | 350 | | pF | |
| Output Capacitance | C_{oss} | | | | 68 | | pF |
| Reverse Transfer Capacitance | C_{rss} | | | | 15 | | pF |
| Turn-ON Delay Time | $t_d(on)$ | | See Fig.2 | | 14.2 | | ns |
| Rise Time | t_r | | | | 37.4 | | ns |
| Turn-OFF Delay Time | $t_d(off)$ | | | | 36.2 | | ns |
| Fall Time | t_f | | | | 20.4 | | ns |
| Total Gate Charge | Q_g | $V_{DS}=200\text{V}, V_{GS}=10\text{V}, I_D=5\text{A}$ | | 13.6 | | nC | |
| Gate-to-Source Charge | Q_{gs} | | | | 3.4 | | nC |
| Gate-to-Drain "Miller" Charge | Q_{gd} | | | | 7.2 | | nC |
| Diode Forward Voltage | V_{SD} | $I_S=5\text{A}, V_{GS}=0\text{V}$ | | 0.9 | 1.2 | V | |

Fig.1 Avalanche Resistance Test Circuit

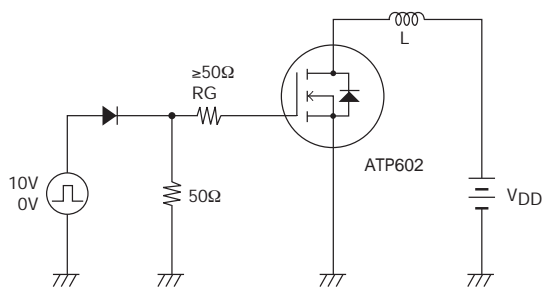
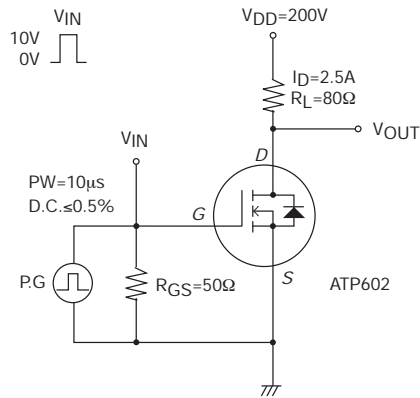
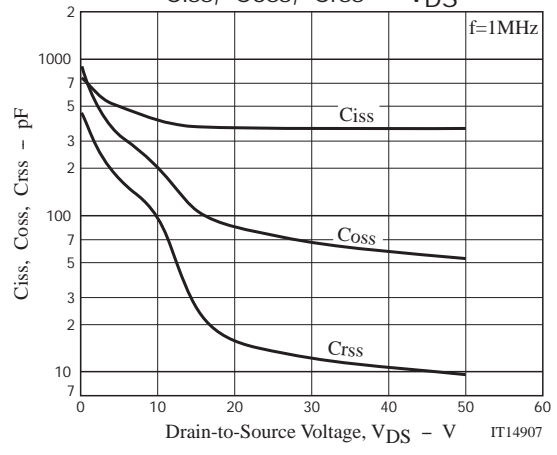
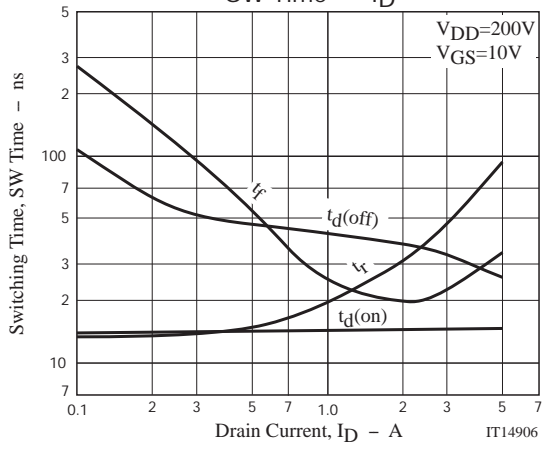
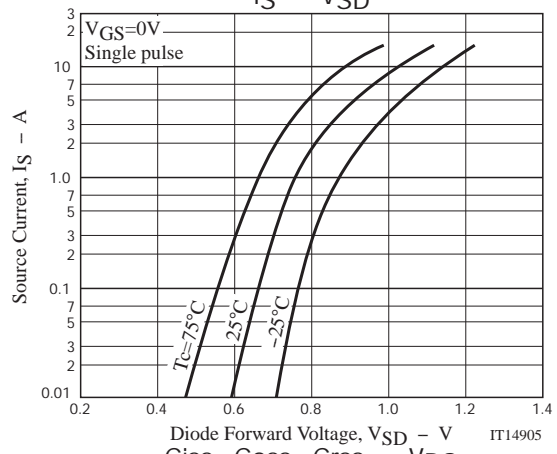
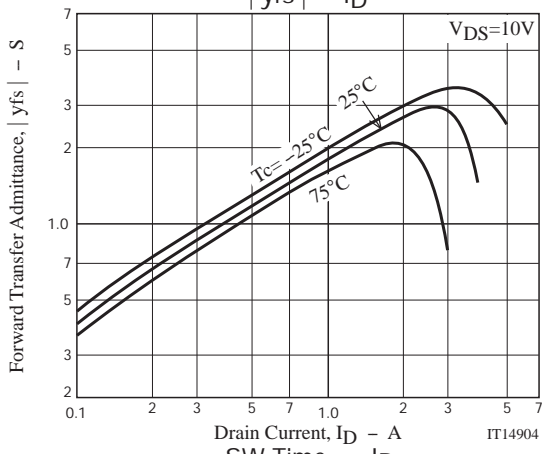
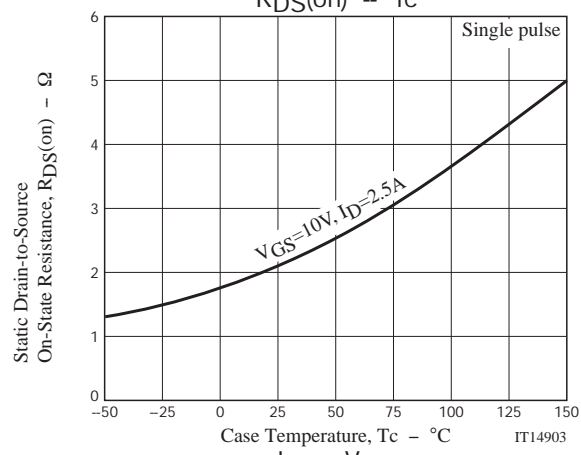
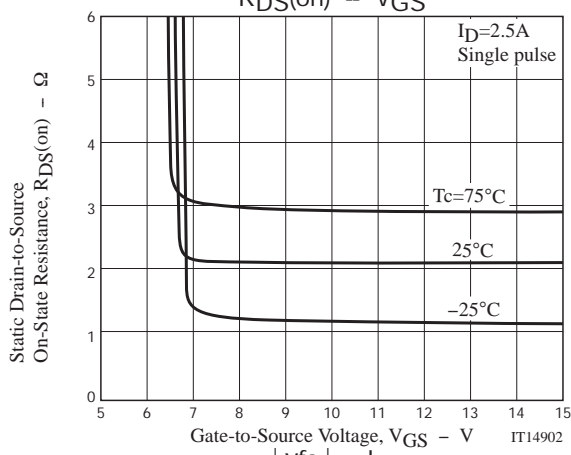
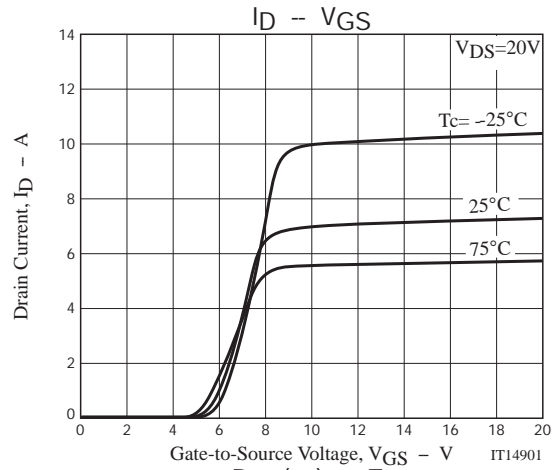
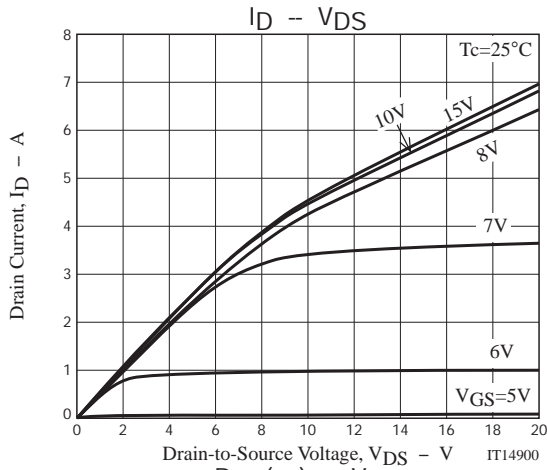


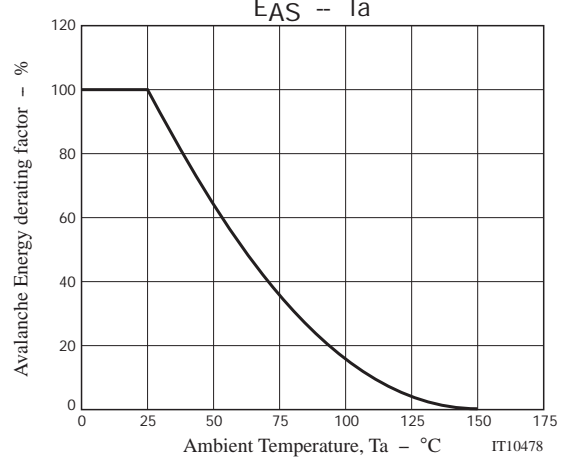
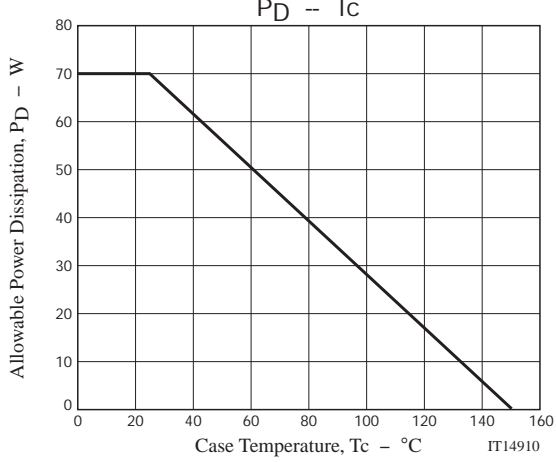
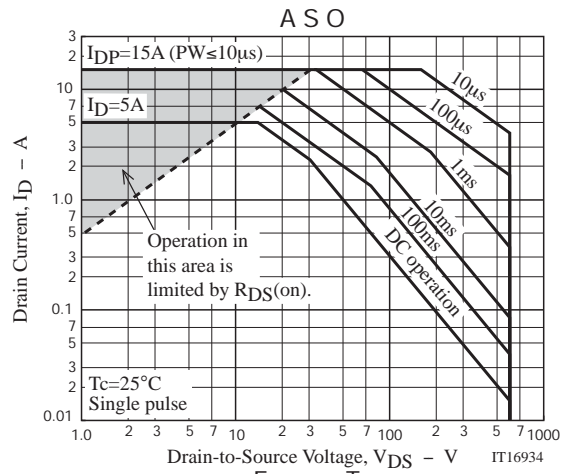
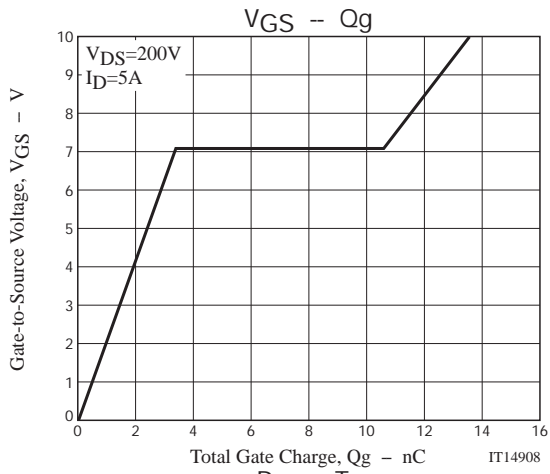
Fig.2 Switching Time Test Circuit



Ordering Information

| Device | Package | Shipping | memo |
|-------------|---------|----------------|--------------------------|
| ATP602-TL-H | ATPAK | 3,000pcs./reel | Pb Free and Halogen Free |





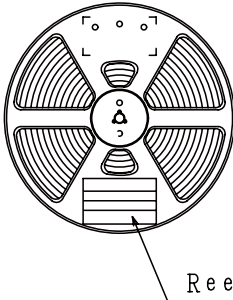
Taping Specification

ATP602-TL-H

1. Packing Format (TL)

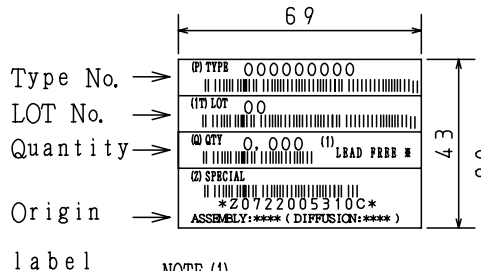
| Package Name | Carrier Tape Type | Maximum Number of devices contained (pcs) | | | Packing format | |
|--------------|-------------------|---|-----------|-----------|---|--|
| | | Reel | Inner box | Outer box | INNER BOX SD-C-18 | OUTER BOX SD-A-18 |
| ATPAK | ATP | 3,000 | 3,000 | 15,000 | 1 reels contained Dimensions:mm (external) 340×340×28 | 5 inner boxes contained Dimensions:mm (external) 355×355×165 |

Packing method



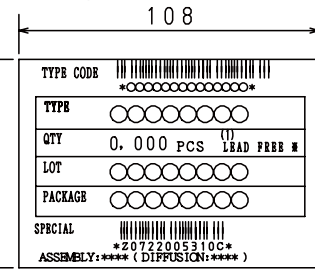
Reel label

Reel label, Inner box label
(unit:mm)



Outer box label

It is a label at the time of factory shipments.
The form of a label may change in physical distribution process.



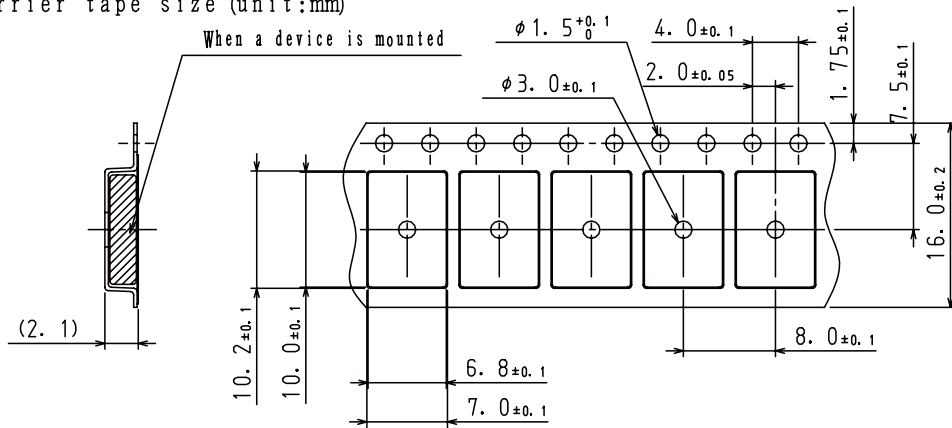
NOTE (1)

The LEAD FREE * description shows that the surface treatment of the terminal is lead free.

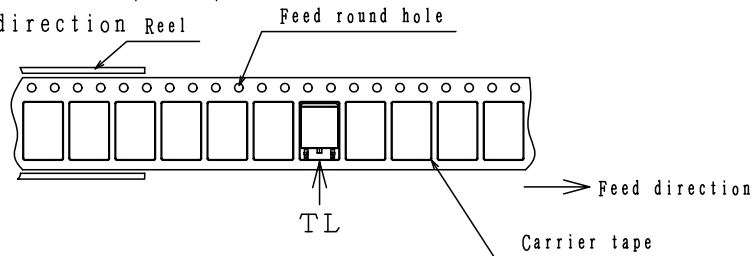
| Label | JEITA Phase |
|-------------|----------------|
| LEAD FREE 3 | JEITA Phase 3A |
| LEAD FREE 4 | JEITA Phase 3 |

2. Taping configuration

2-1. Carrier tape size (unit:mm)



2-2. Device placement direction Reel

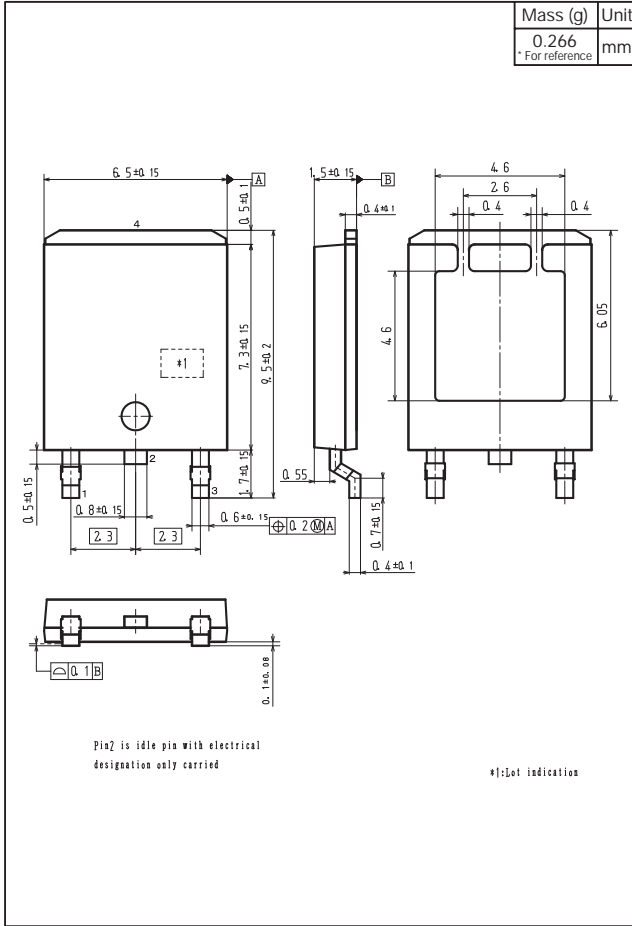


The one electrode terminals on feed hole side...TL

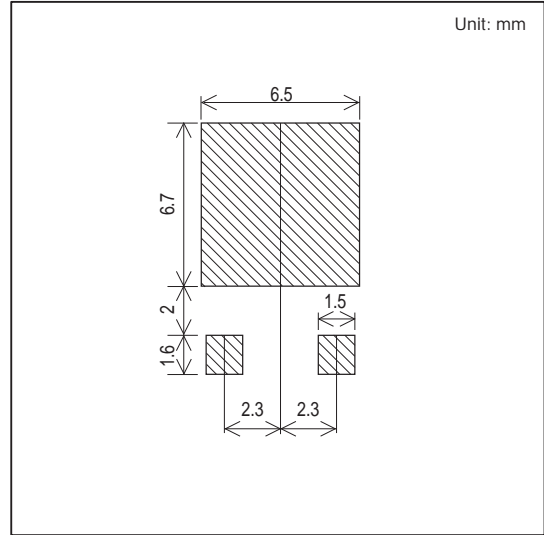
ATP602

Outline Drawing

ATP602-TL-H



Land Pattern Example



Note on usage : Since the ATP602 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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