



SANYO Semiconductors

## DATA SHEET

An ON Semiconductor Company

P-Channel Silicon MOSFET

# ATP107 — General-Purpose Switching Device Applications

## Features

- Low ON-resistance
- Slim package
- Halogen free compliance
- Large current
- 4.5V drive
- Protection diode in

## Specifications

Absolute Maximum Ratings at Ta=25°C

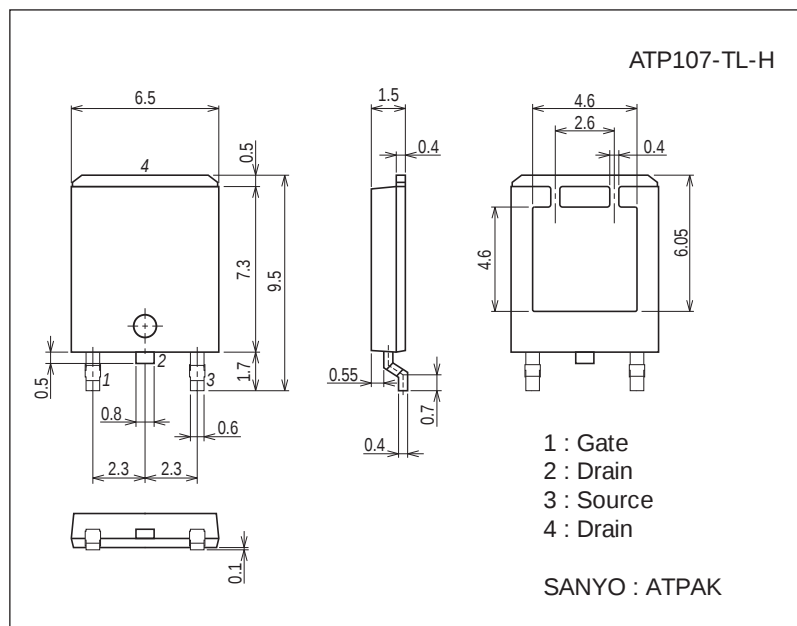
| Parameter                          | Symbol   | Conditions             | Ratings     | Unit |
|------------------------------------|----------|------------------------|-------------|------|
| Drain-to-Source Voltage            | $V_{DS}$ |                        | -40         | V    |
| Gate-to-Source Voltage             | $V_{GS}$ |                        | ±20         | V    |
| Drain Current (DC)                 | $I_D$    |                        | -50         | A    |
| Drain Current (PW≤10μs)            | $I_{DP}$ | PW≤10μs, duty cycle≤1% | -150        | A    |
| Allowable Power Dissipation        | $P_D$    | Tc=25°C                | 50          | W    |
| Channel Temperature                | Tch      |                        | 150         | °C   |
| Storage Temperature                | Tstg     |                        | -55 to +150 | °C   |
| Avalanche Energy (Single Pulse) *1 | $E_{AS}$ |                        | 80          | mJ   |
| Avalanche Current *2               | $I_{AV}$ |                        | -25         | A    |

Note : \*1  $V_{DD} = -10V$ ,  $L = 200\mu H$ ,  $I_{AV} = -25A$ \*2  $L \leq 200\mu H$ , Single pulse

## Package Dimensions

unit : mm (typ)

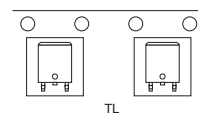
7057-001



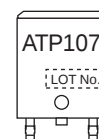
## Product & Package Information

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

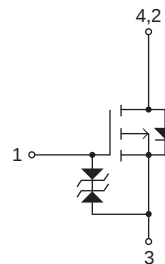
## Packing Type: TL



## Marking



## Electrical Connection

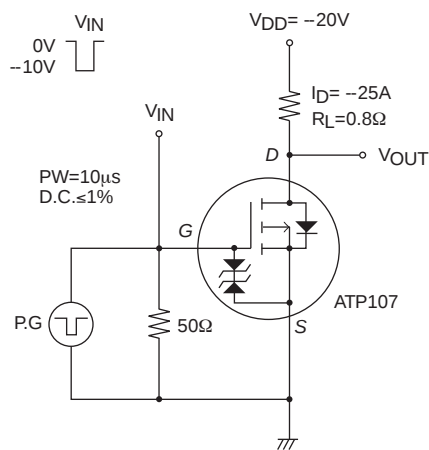


ATP107

Electrical Characteristics at Ta=25°C

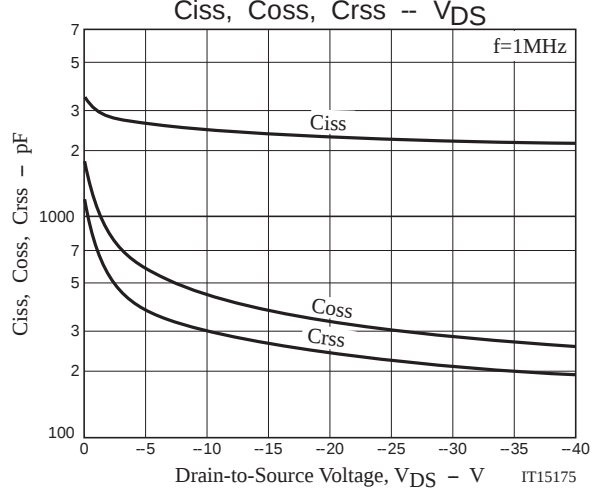
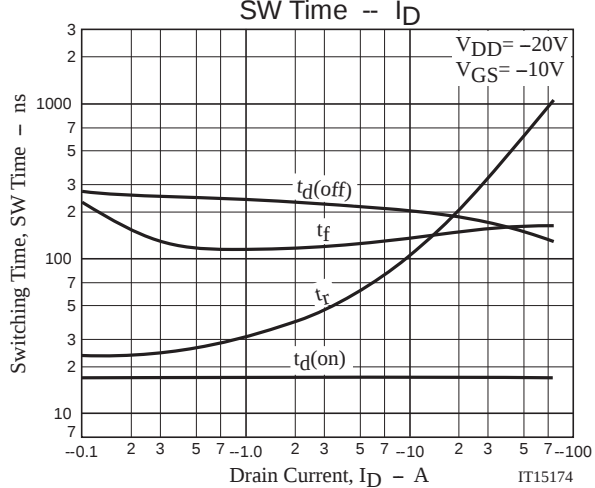
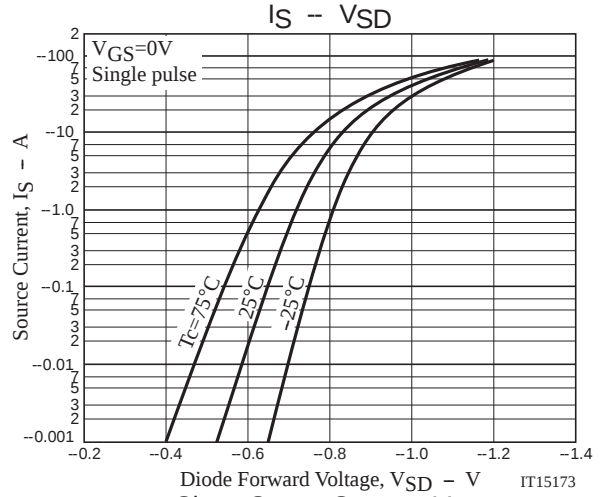
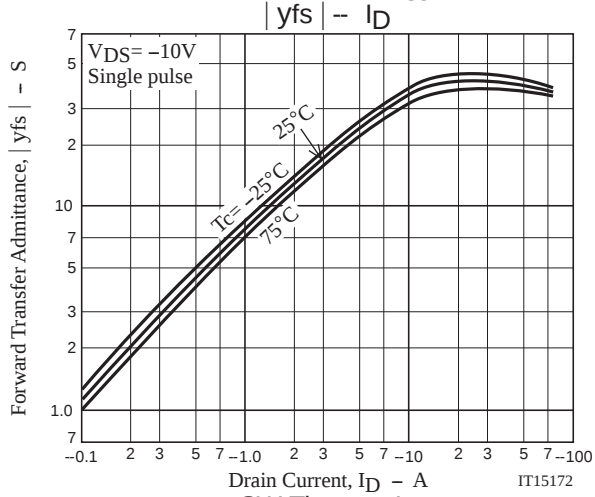
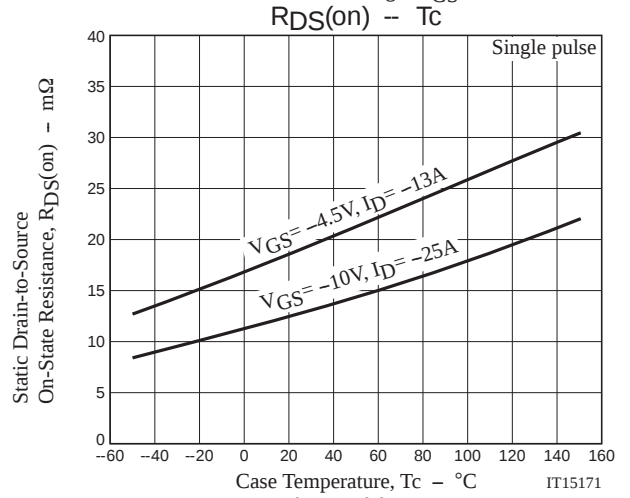
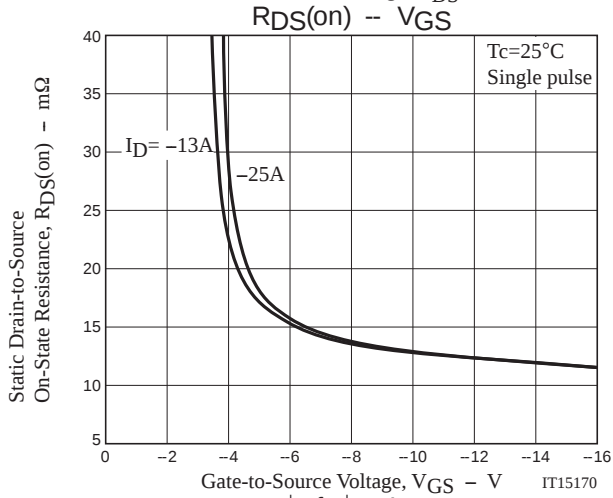
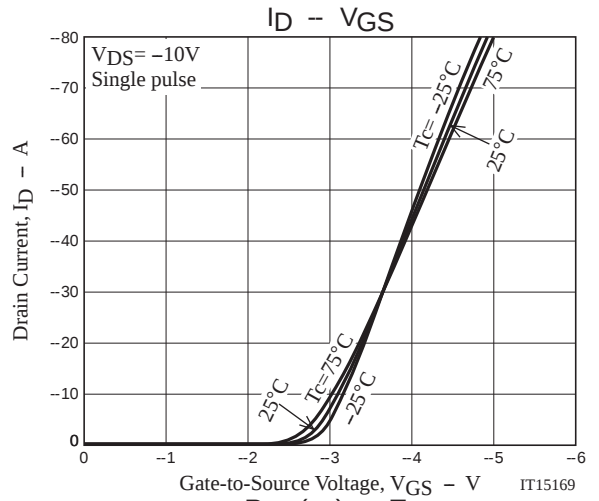
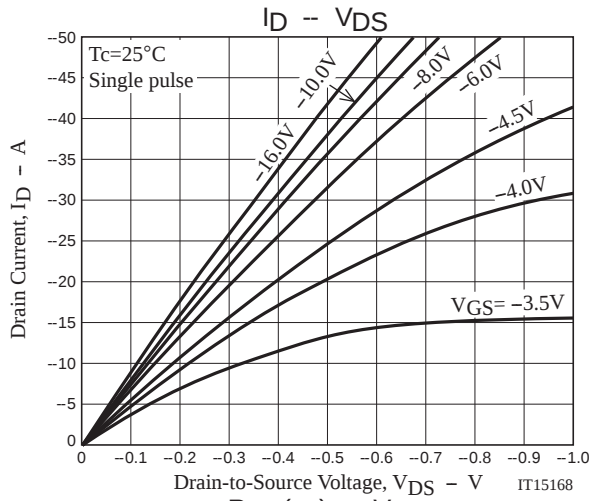
| Parameter                                  | Symbol        | Conditions                           | Ratings |       |          | Unit      |
|--------------------------------------------|---------------|--------------------------------------|---------|-------|----------|-----------|
|                                            |               |                                      | min     | typ   | max      |           |
| Drain-to-Source Breakdown Voltage          | $V_{(BR)DSS}$ | $I_D=-1mA, V_{GS}=0V$                | -40     |       |          | V         |
| Zero-Gate Voltage Drain Current            | $I_{DSS}$     | $V_{DS}=-40V, V_{GS}=0V$             |         |       | -1       | $\mu A$   |
| Gate-to-Source Leakage Current             | $I_{GSS}$     | $V_{GS}=\pm 16V, V_{DS}=0V$          |         |       | $\pm 10$ | $\mu A$   |
| Cutoff Voltage                             | $V_{GS(off)}$ | $V_{DS}=-10V, I_D=-1mA$              | -1.5    |       | -2.6     | V         |
| Forward Transfer Admittance                | $ y_{fs} $    | $V_{DS}=-10V, I_D=-25A$              |         | 40    |          | S         |
| Static Drain-to-Source On-State Resistance | $R_{DS(on)1}$ | $I_D=-25A, V_{GS}=-10V$              |         | 13    | 17       | $m\Omega$ |
|                                            | $R_{DS(on)2}$ | $I_D=-13A, V_{GS}=-4.5V$             |         | 18.5  | 26       | $m\Omega$ |
| Input Capacitance                          | $C_{iss}$     | $V_{DS}=-20V, f=1MHz$                |         | 2400  |          | pF        |
| Output Capacitance                         | $C_{oss}$     |                                      |         | 330   |          | pF        |
| Reverse Transfer Capacitance               | $C_{rss}$     |                                      |         | 240   |          | pF        |
| Turn-ON Delay Time                         | $t_d(on)$     | See specified Test Circuit.          |         | 17    |          | ns        |
| Rise Time                                  | $t_r$         |                                      |         | 260   |          | ns        |
| Turn-OFF Delay Time                        | $t_d(off)$    |                                      |         | 190   |          | ns        |
| Fall Time                                  | $t_f$         |                                      |         | 160   |          | ns        |
| Total Gate Charge                          | $Q_g$         | $V_{DS}=-20V, V_{GS}=-10V, I_D=-50A$ |         | 47    |          | nC        |
| Gate-to-Source Charge                      | $Q_{gs}$      |                                      |         | 11.5  |          | nC        |
| Gate-to-Drain "Miller" Charge              | $Q_{gd}$      |                                      |         | 8     |          | nC        |
| Diode Forward Voltage                      | $V_{SD}$      | $I_S=-50A, V_{GS}=0V$                |         | -1.02 | -1.5     | V         |

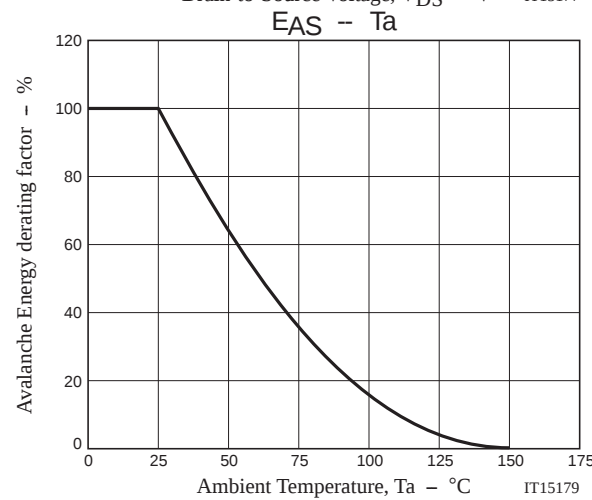
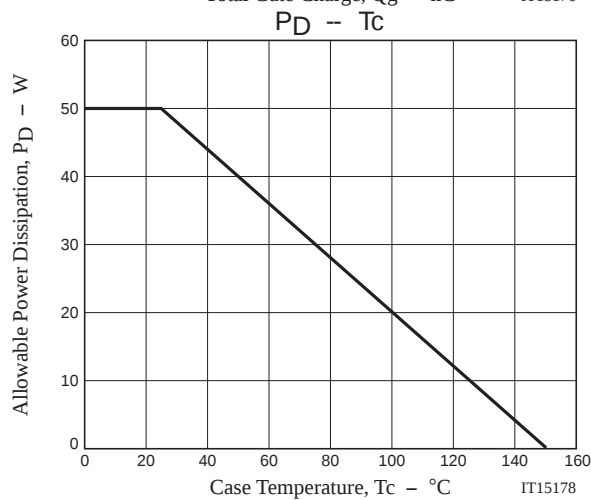
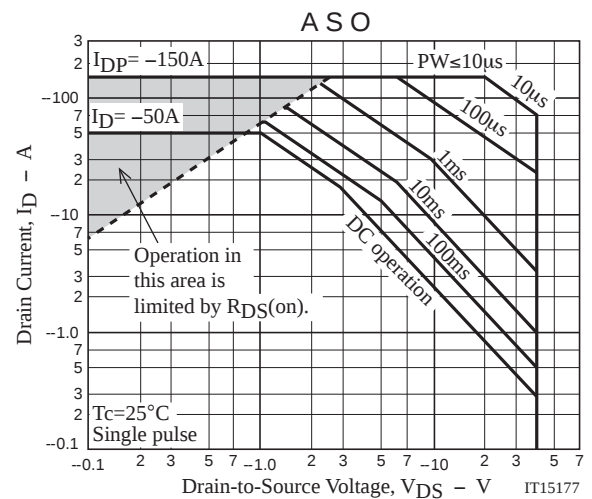
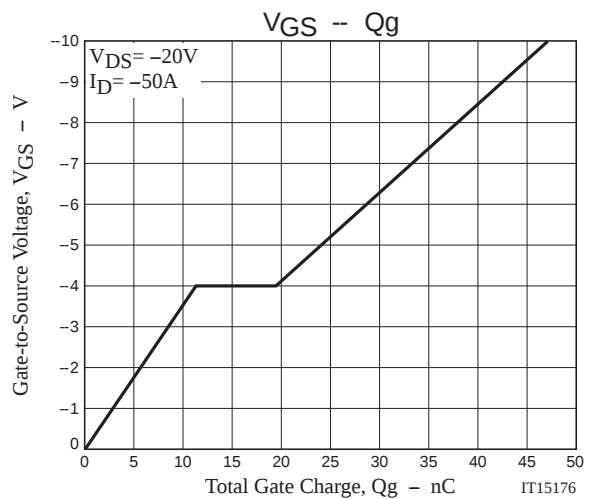
Switching Time Test Circuit



Ordering Information

| Device      | Package | Shipping       | memo                     |
|-------------|---------|----------------|--------------------------|
| ATP107-TL-H | ATPAK   | 3,000pcs./reel | Pb Free and Halogen Free |





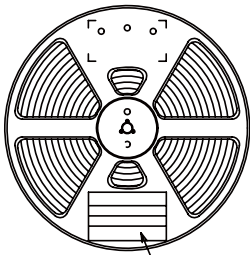
Taping Specification

ATP107-TL-H

1. Packing Format (TL)

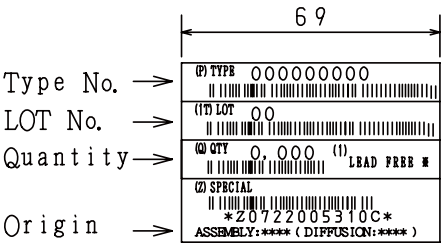
| Package Name | Carrier Tape<br>Type | Maximum Number of<br>devices contained (pcs) |           |           | Packing format                                              |                                                                    |
|--------------|----------------------|----------------------------------------------|-----------|-----------|-------------------------------------------------------------|--------------------------------------------------------------------|
|              |                      | 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<br>Dimensions:mm (external)<br>340×340×28 | 5 inner boxes contained<br>Dimensions:mm (external)<br>355×355×165 |

Packing method



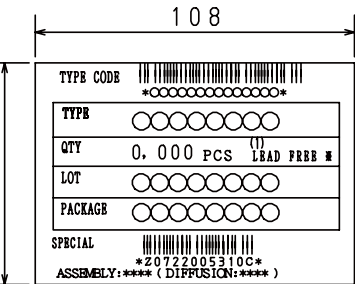
Reel label

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.



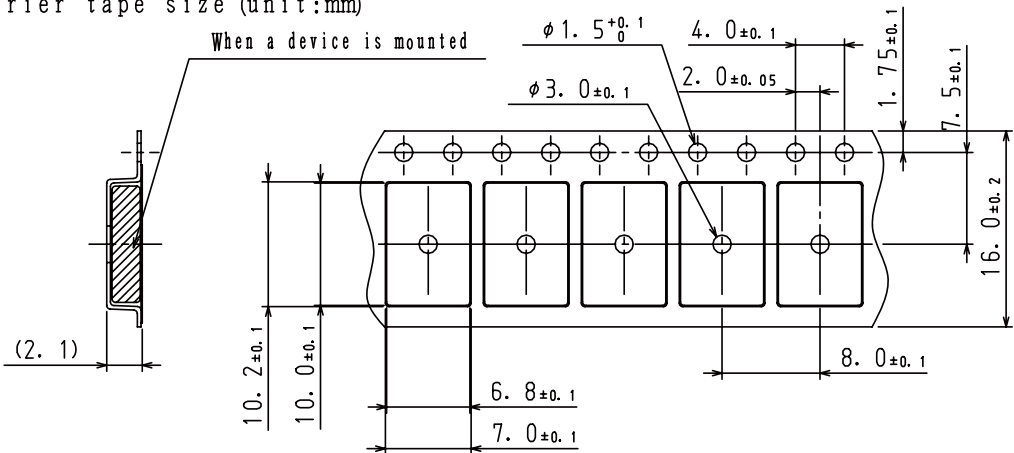
NOTE (1)

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

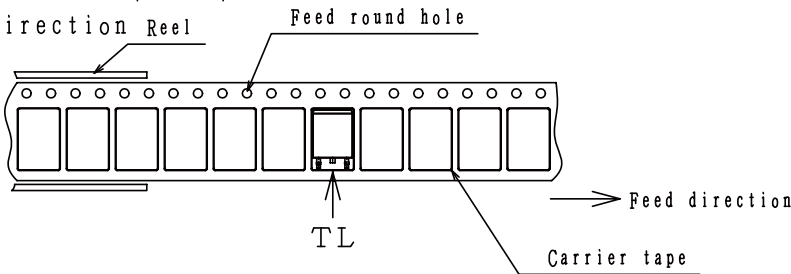
| Label       | JEITA Phase    |
|-------------|----------------|
| LEAD FREE 3 | JEITA Phase 3A |
| LEAD FREE 4 | JEITA Phase 3  |

2. Taping configuration

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



2-2. Device placement direction Reel

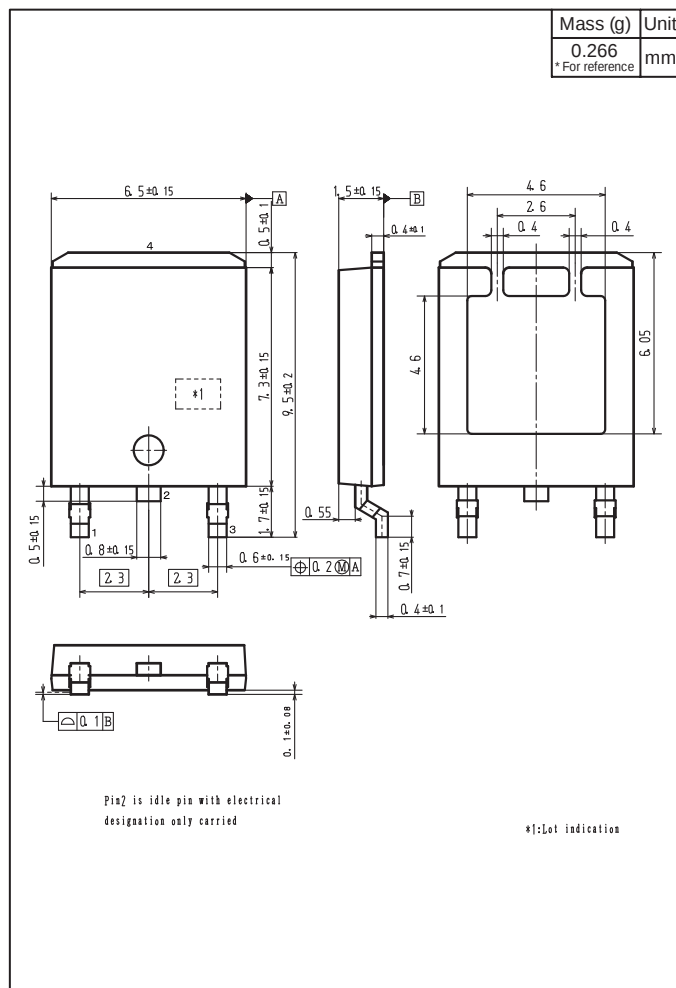


The one electrode terminals on feed hole side...TL

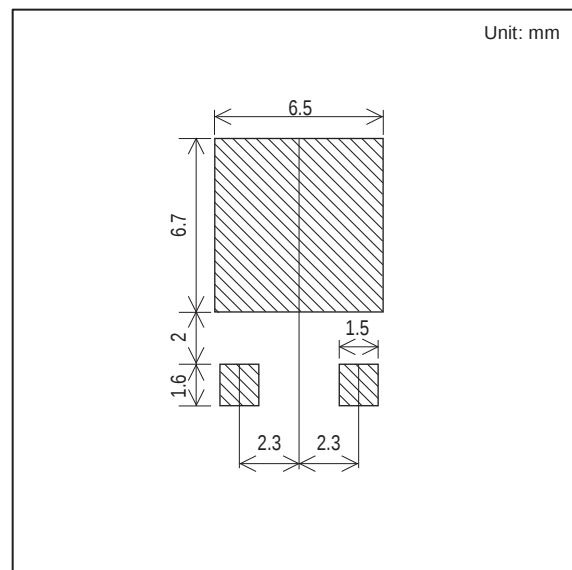
**ATP107**

## Outline Drawing

ATP107-TL-H



### Land Pattern Example



Note on usage : Since the ATP107 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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