Ordering number : EN1509A

# SFT1423

## N-Channel Power MOSFET
## 500V, 2A, 4.9Ω, Single TP/TP-FA

ON Semiconductor®
http://onsemi.com

### Features

- ON-resistance
- 4V drive
- Protection diode in

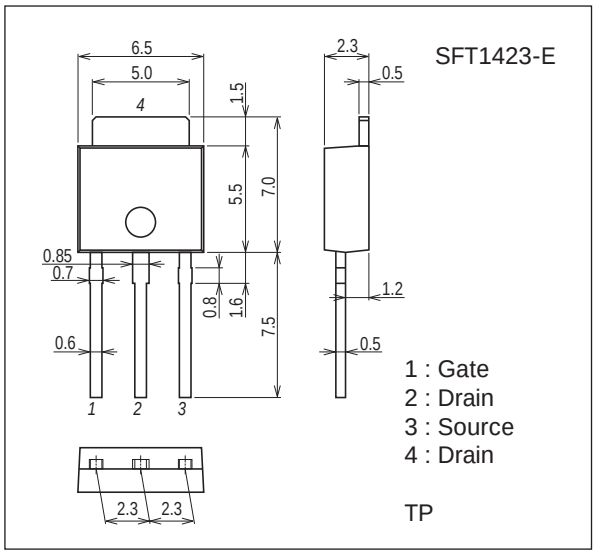
### Specifications

**Absolute Maximum Ratings** at Ta=25°C

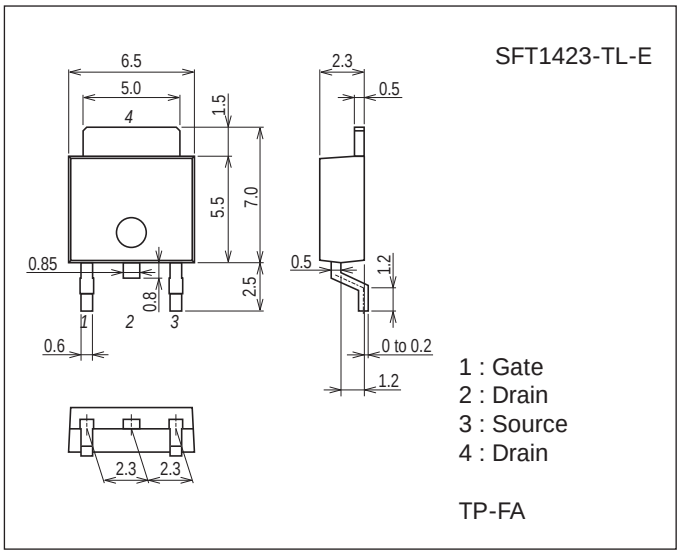
| Parameter | Symbol | Conditions | Ratings | Unit |
|---|---|---|---|---|
| Drain-to-Source Voltage | $V_{DSS}$ | | 500 | V |
| Gate-to-Source Voltage | $V_{GSS}$ | | ±20 | V |
| Drain Current (DC) | $I_D$ | | 2 | A |
| Drain Current (PW≤10μs) | $I_{DP}$ | PW≤10μs, duty cycle≤1% | 10 | A |
| Allowable Power Dissipation | $P_D$ | | 1.0 | W |
| | | Tc=25°C | 20 | W |
| Channel Temperature | Tch | | 150 | °C |
| Storage Temperature | Tstg | | −55 to +150 | °C |

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

**Package Dimensions** unit : mm (typ)
7518-004




**Package Dimensions** unit : mm (typ)
7003-004

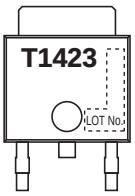



### Product & Package Information

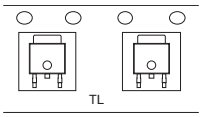
- Package : TP
- JEITA, JEDEC : SC-64, TO-251
- Minimum Packing Quantity : 500 pcs./bag

- Package : TP-FA
- JEITA, JEDEC : SC-63, TO-252
- Minimum Packing Quantity : 700 pcs./reel

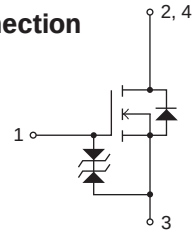
**Marking (TP, TP-FA)**




**Packing Type (TP-FA) : TL**




**Electrical Connection**




Semiconductor Components Industries, LLC, 2013
July, 2013



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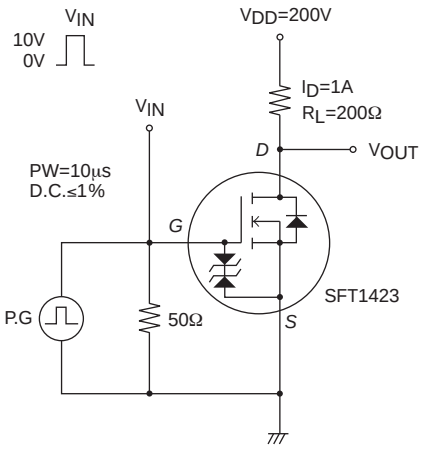
## Electrical Characteristics at Ta=25°C

| Parameter | Symbol | Conditions | Ratings | | | Unit |
|---|---|---|---|---|---|---|
| | | | min | typ | max | |
| Drain-to-Source Breakdown Voltage | $V_{(BR)DSS}$ | $I_D$=10mA, $V_{GS}$=0V | 500 | | | V |
| Zero-Gate Voltage Drain Current | $I_{DSS}$ | $V_{DS}$=400V, $V_{GS}$=0V | | | 100 | μA |
| Gate-to-Source Leakage Current | $I_{GSS}$ | $V_{GS}$=±16V, $V_{DS}$=0V | | | ±10 | μA |
| Cutoff Voltage | $V_{GS}$(off) | $V_{DS}$=10V, $I_D$=1mA | 1.2 | | 2.6 | V |
| Forward Transfer Admittance | \| yfs \| | $V_{DS}$=10V, $I_D$=1A | 1.1 | 1.9 | | S |
| Static Drain-to-Source On-State Resistance | $R_{DS}$(on)1 | $I_D$=1A, $V_{GS}$=10V | | 3.8 | 4.9 | Ω |
| | $R_{DS}$(on)2 | $I_D$=0.5A, $V_{GS}$=4V | | 3.9 | 5 | Ω |
| Input Capacitance | Ciss | $V_{DS}$=30V, f=1MHz | | 175 | | pF |
| Output Capacitance | Coss | | | 32 | | pF |
| Reverse Transfer Capacitance | Crss | | | 6 | | pF |
| Turn-ON Delay Time | $t_d$(on) | See specified Test Circuit. | | 7.4 | | ns |
| Rise Time | $t_r$ | | | 8.8 | | ns |
| Turn-OFF Delay Time | $t_d$(off) | | | 42 | | ns |
| Fall Time | $t_f$ | | | 27 | | ns |
| Total Gate Charge | Qg | $V_{DS}$=200V, $V_{GS}$=10V, $I_D$=2A | | 8.7 | | nC |
| Gate-to-Source Charge | Qgs | | | 1.1 | | nC |
| Gate-to-Drain “Miller” Charge | Qgd | | | 2.9 | | nC |
| Diode Forward Voltage | $V_{SD}$ | $I_S$=2A, $V_{GS}$=0V | | 0.9 | 1.2 | V |

## Switching Time Test Circuit




## Ordering Information

| Device | Package | Shipping | memo |
|---|---|---|---|
| SFT1423-E | TP | 500pcs./bag | Pb Free |
| SFT1423-TL-E | TP-FA | 700pcs./reel | |



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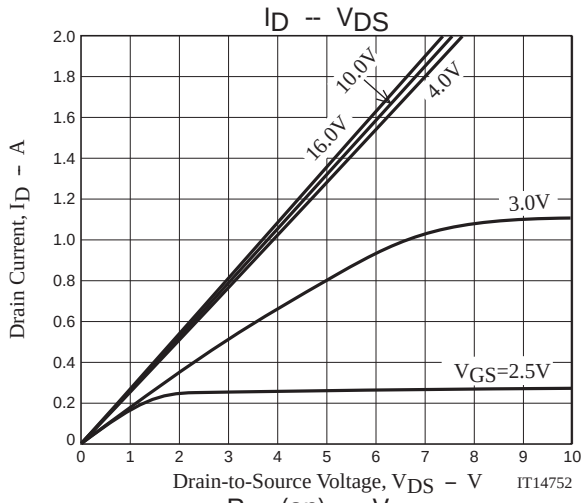


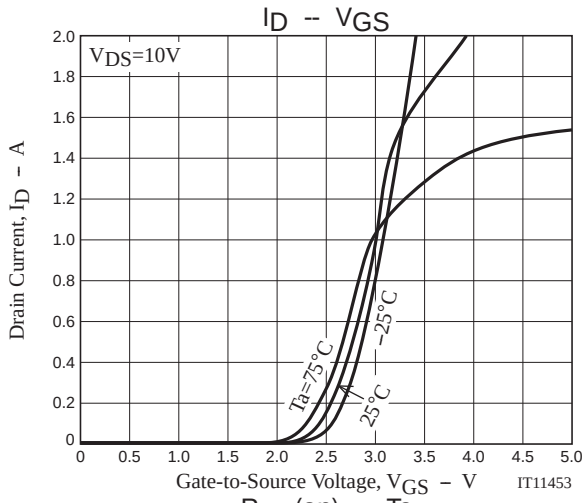


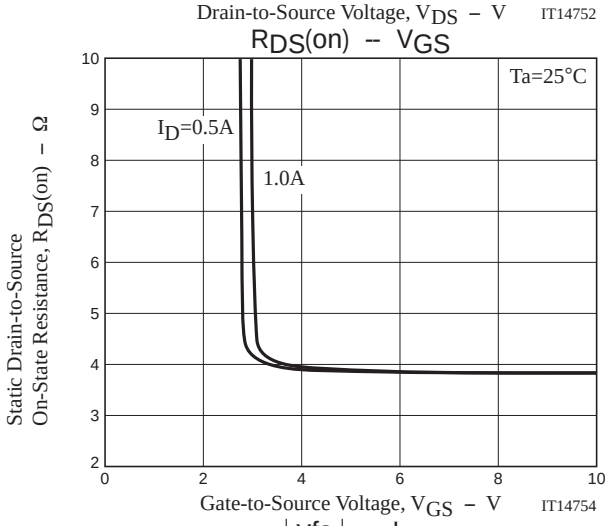


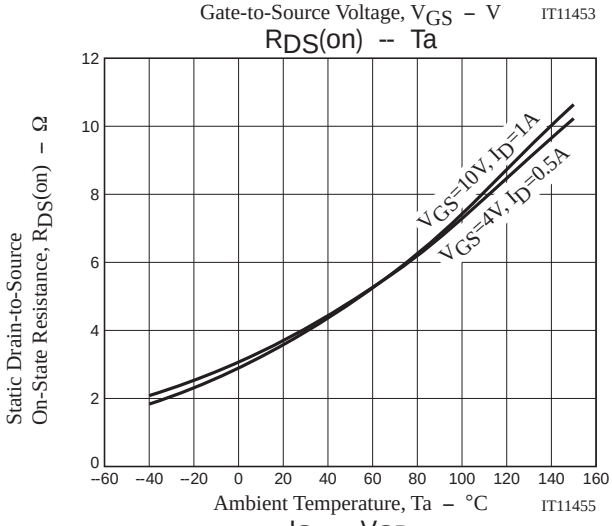


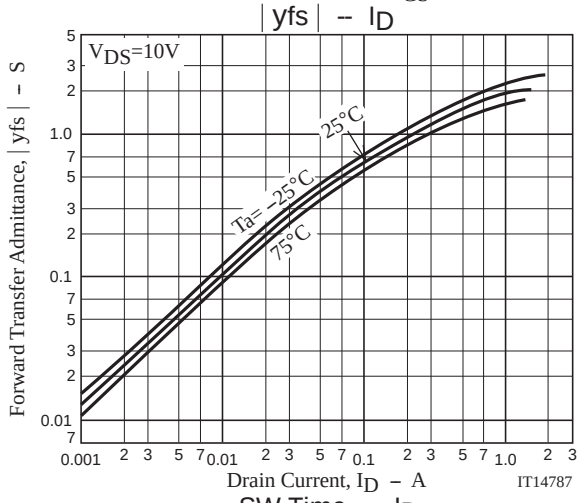


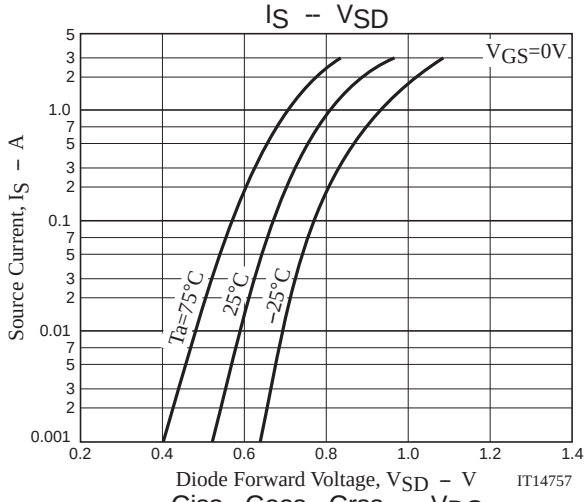


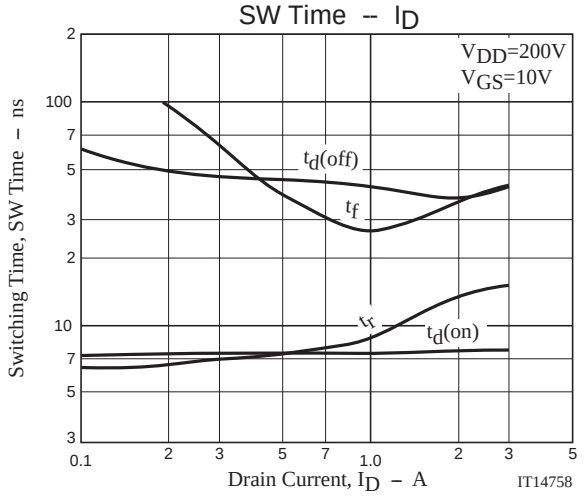


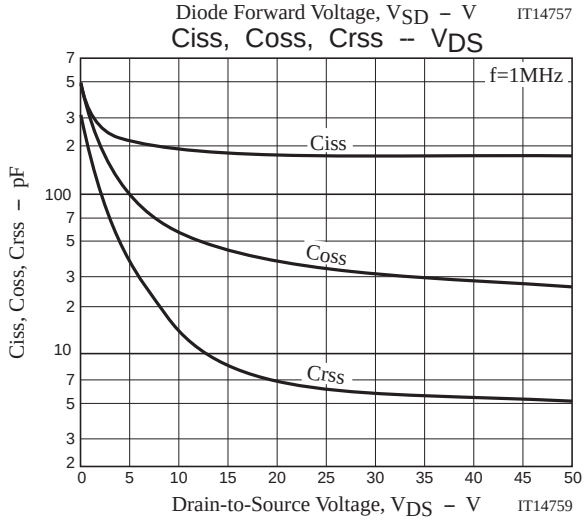




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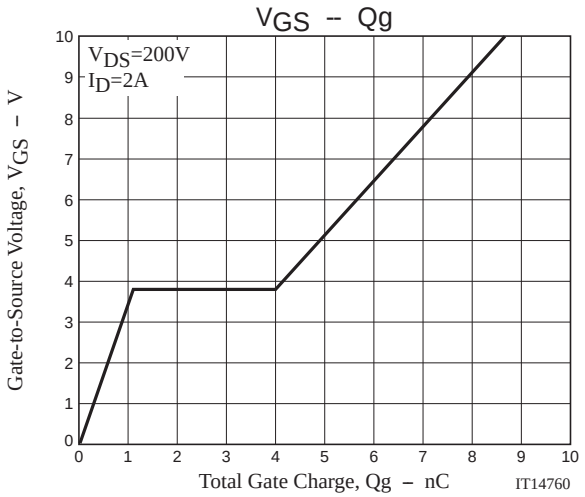


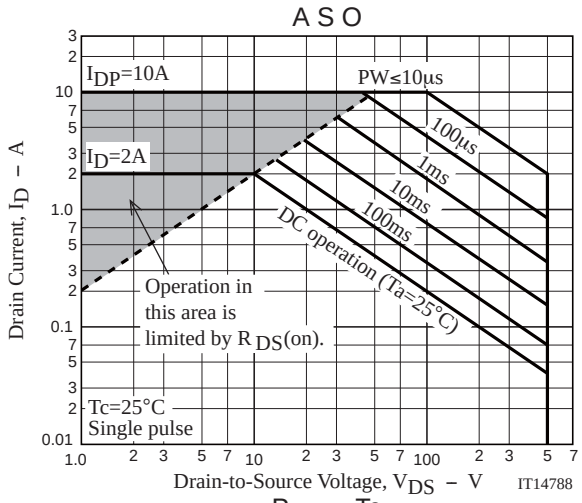


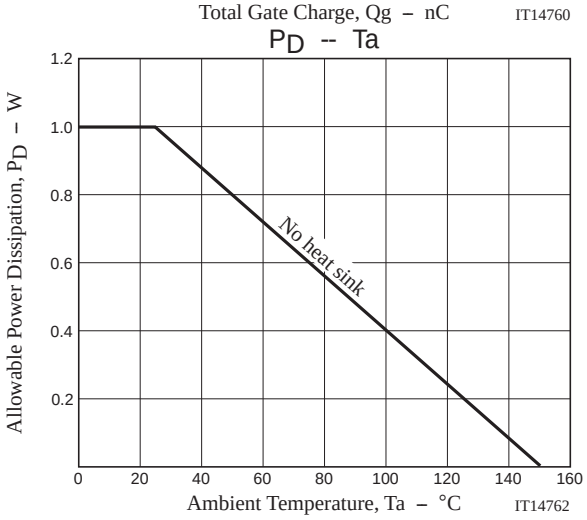


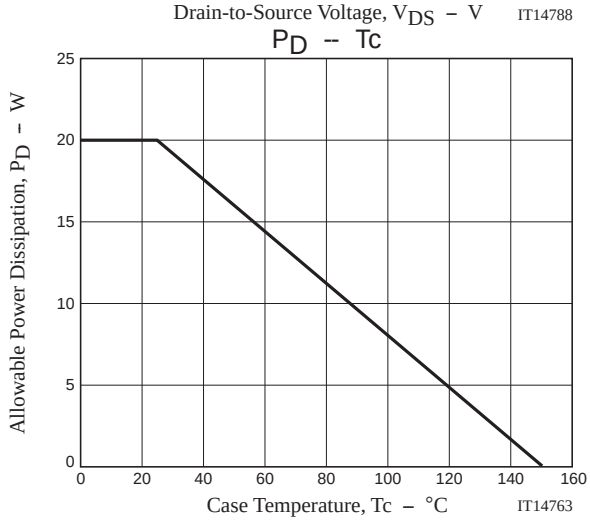




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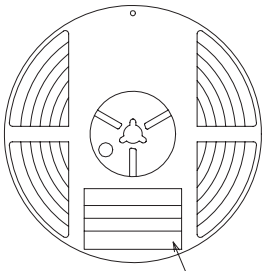
**Taping Specification**

SFT1423-TL-E

## Packing Format

| Package Name | Carrier Tape Type | Maximum Number of devices contained (pcs) | | | Packing format | |
|---|---|---|---|---|---|---|
| | | Reel | Inner box | Outer box | Inner BOX (C-1) | Outer BOX (A-7) |
| TP-FA | TP | 700 | 2,100 | 12,600 | 3 reels contained<br>Dimensions:mm (external)<br>183×72×185 | 6 inner boxes contained<br>Dimensions:mm (external)<br>440×195×210 |

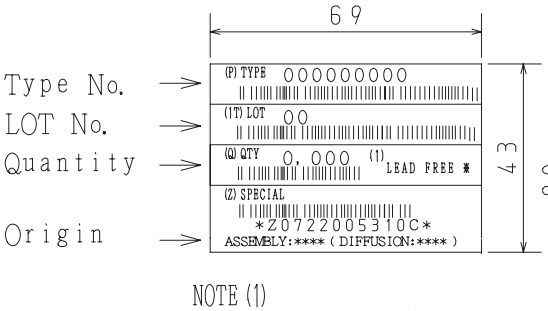
### Packing method



Reel label

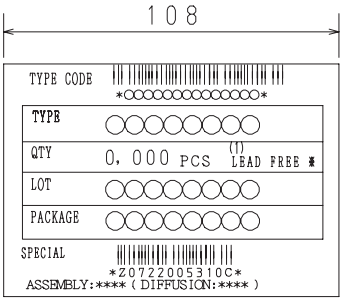
Reel label, Inner box label

(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.

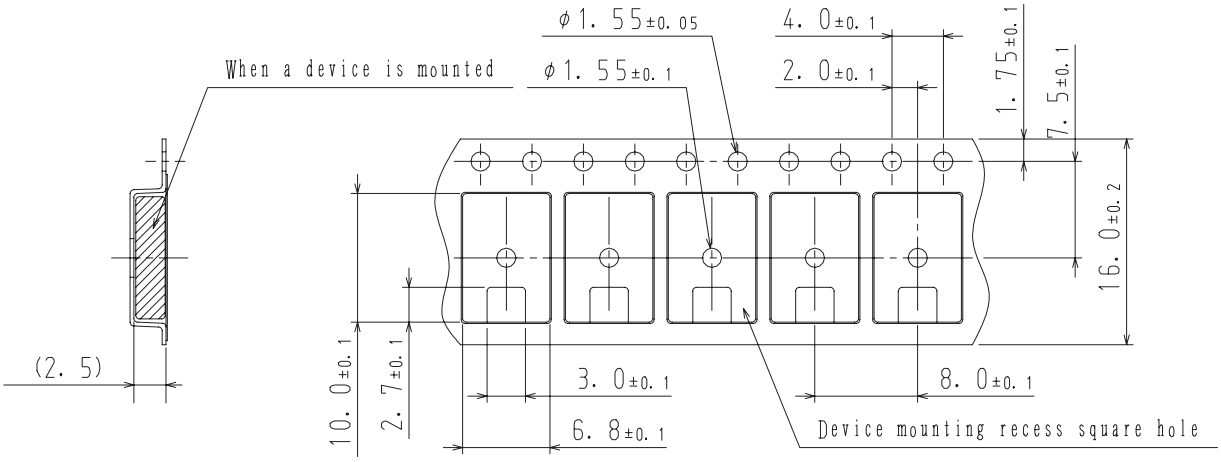



NOTE (1)
The LEAD FREE ※ description shows that the surface treatment of the terminal is lead free.

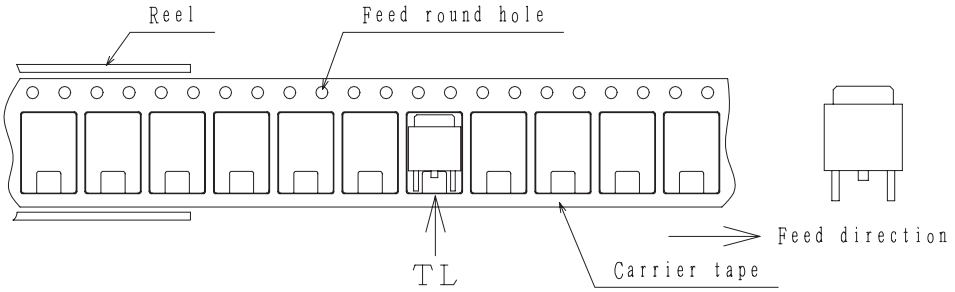
| Label | JEITA Phase |
|---|---|
| LEAD FREE 3 | JEITA Phase 3A |
| LEAD FREE 4 | JEITA Phase 3 |

## Taping configuration

1. Carrier tape size (unit:mm)




2. Device placement direction




Those with one electrode terminal on the feed hole side·····TL



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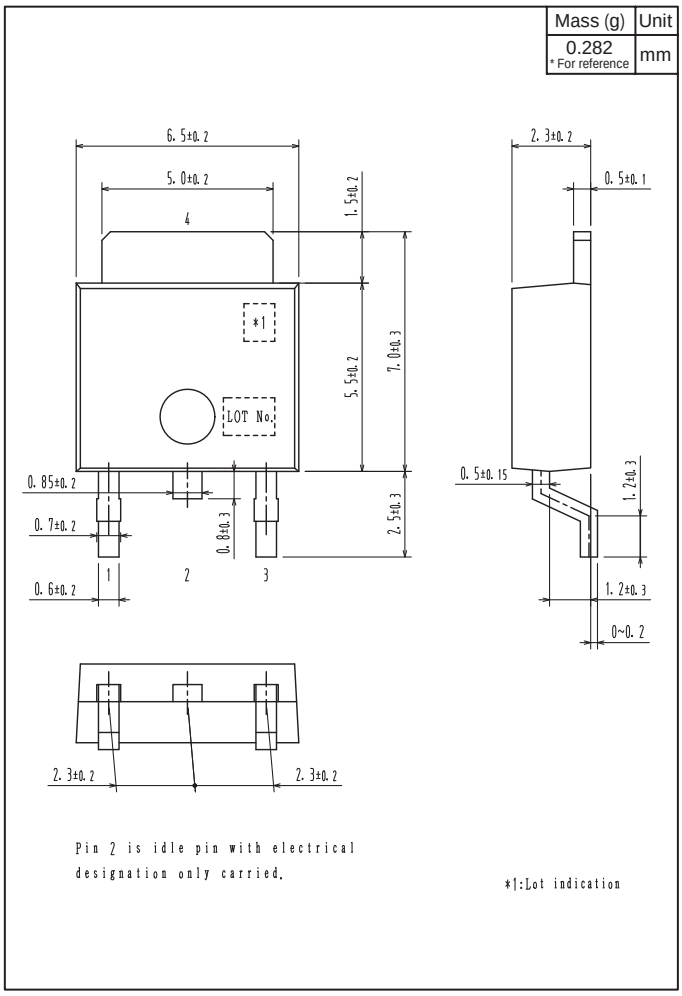
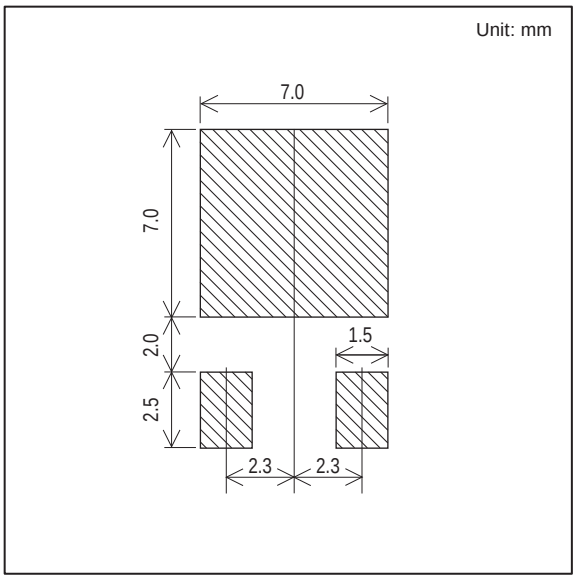
## Outline Drawing

SFT1423-TL-E




## Land Pattern Example



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## Bag Packing Specification

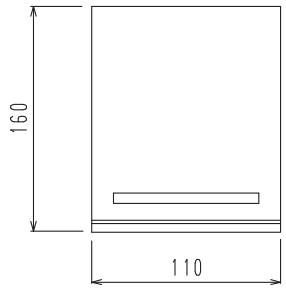
SFT1423-E

### 1. Packing Format

| Package Name | Maximum Number of devices contained (pcs) | | | |
|---|---|---|---|---|
| | Bag | Inner box | Outer box | |
| TP | 500 | B-1 | A-1 | A-2 |
| | | 10,000 | 50,000 | 30,000 |
| | | Packing format (Dimensions:mm (external)) | | |
| | | Inner box | Outer box | |
| | | B-1 | A-1 | A-2 |
| | | 445×225×55 | 470×250×300 | 470×250×190 |

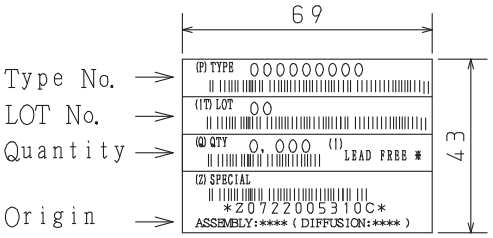
### 2. Bag dimensions

(unit:mm)




### 3. Bag label, Inner box label

(unit:mm)



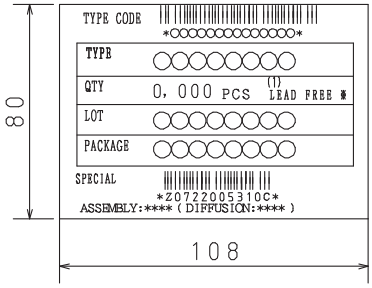

NOTE (1)
The LEAD FREE ※ description shows that the surface treatment of the terminal is lead free.

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

### 4. Outer box label

(unit:mm)

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



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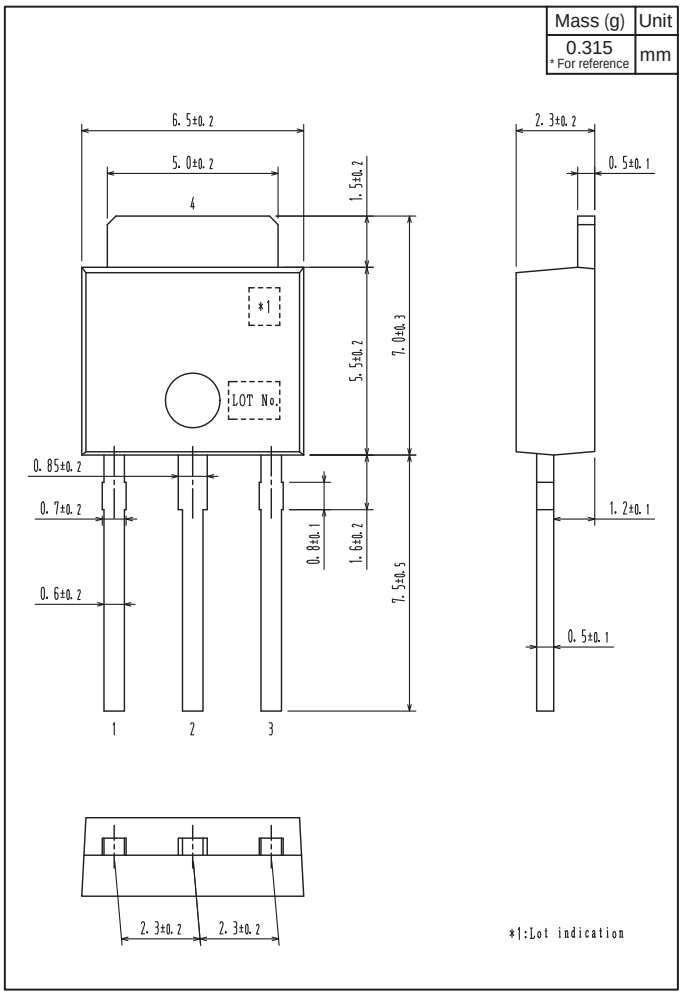
## Outline Drawing

SFT1423-E



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Note on usage : Since the SFT1423 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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