



SANYO Semiconductors

# DATA SHEET

An ON Semiconductor Company

## SFT1450 — N-Channel Silicon MOSFET General-Purpose Switching Device Applications

### Features

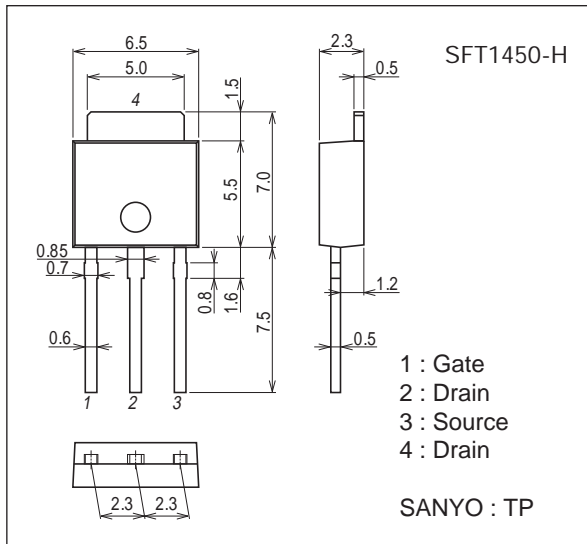
- ON-resistance  $R_{DS(on)} = 21\text{m}\Omega$ (typ.)
- Input Capacitance  $C_{iss} = 715\text{pF}$ (typ.)
- 4.5V drive
- Halogen free compliance
- Protection diode in

### Specifications

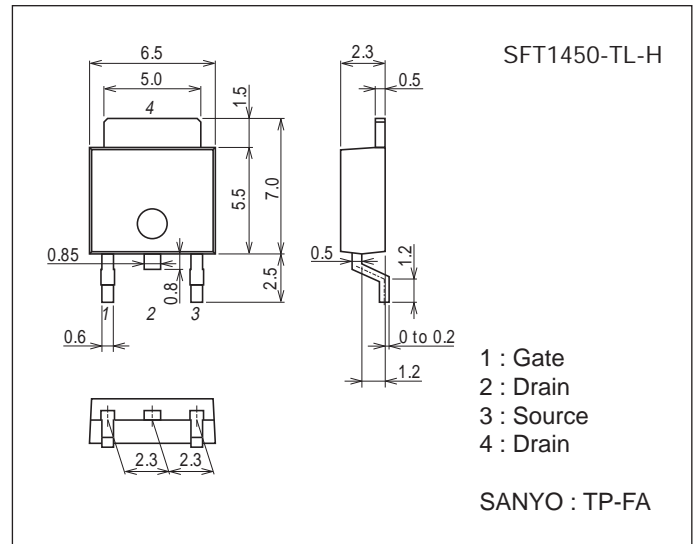
Absolute Maximum Ratings at  $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	$V_{DSS}$		40	V
Gate-to-Source Voltage	$V_{GSS}$		$\pm 20$	V
Drain Current (DC)	$I_D$		21	A
Drain Current (Pulse)	$I_{DP}$	$PW \leq 10\mu\text{s}$ , duty cycle $\leq 1\%$	84	A
Allowable Power Dissipation	$P_D$		1	W
		$T_c = 25^\circ\text{C}$	23	W
Channel Temperature	$T_{ch}$		150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$		-55 to +150	$^\circ\text{C}$

Package Dimensions unit : mm (typ)  
7518-004



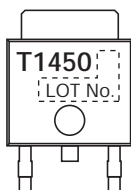
Package Dimensions unit : mm (typ)  
7003-004



### Product & Package Information

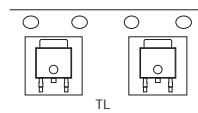
- Package : TP
- JEITA, JEDEC : SC-64, TO-251
- Minimum Packing Quantity : 500 pcs./bag

Marking  
(TP, TP-FA)

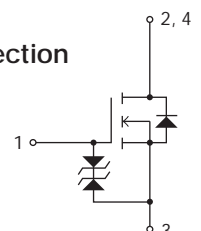


- Package : TP-FA
- JEITA, JEDEC : SC-63, TO-252
- Minimum Packing Quantity : 700 pcs./reel

Packing Type (TP-FA) : TL



Electrical Connection

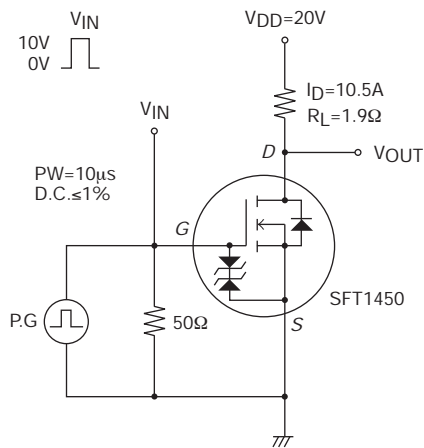


# SFT1450

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

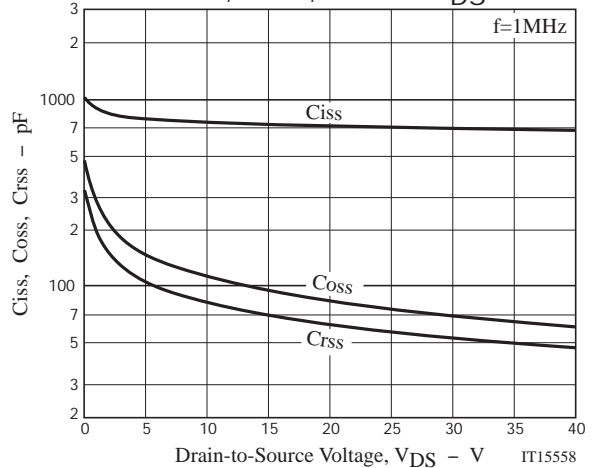
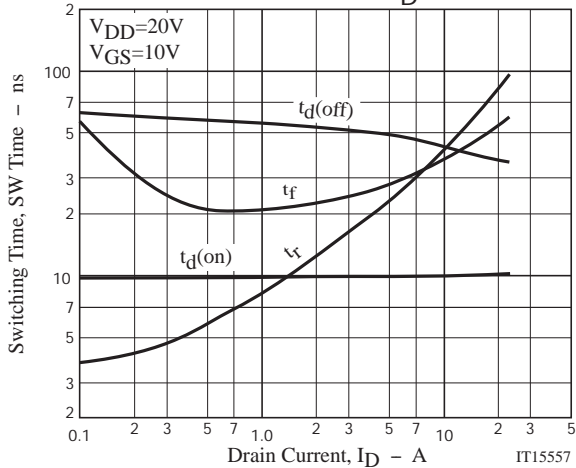
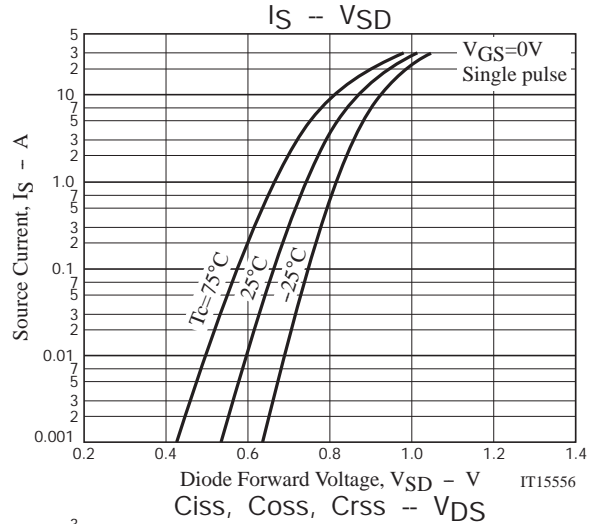
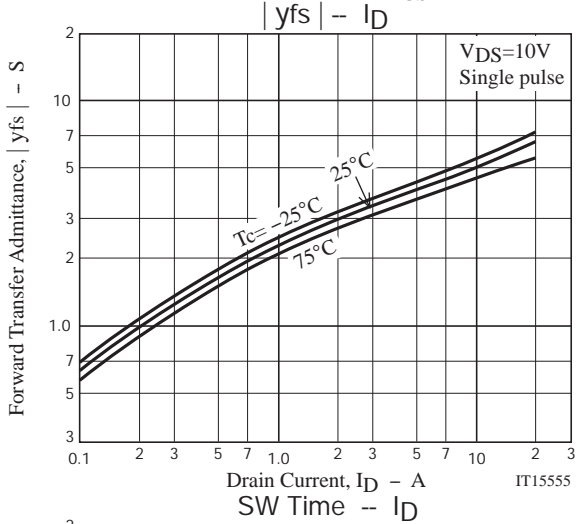
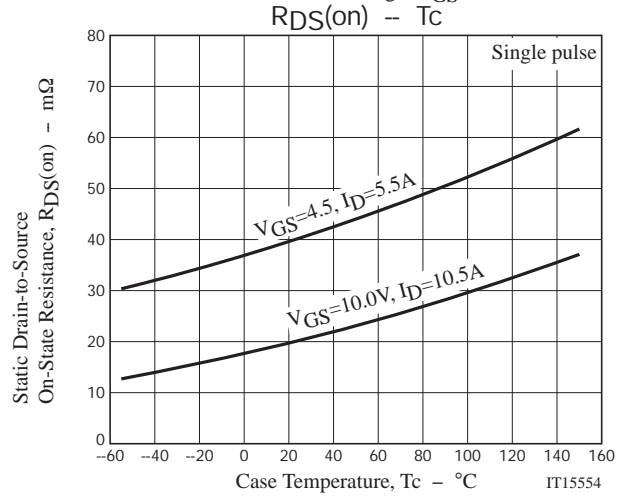
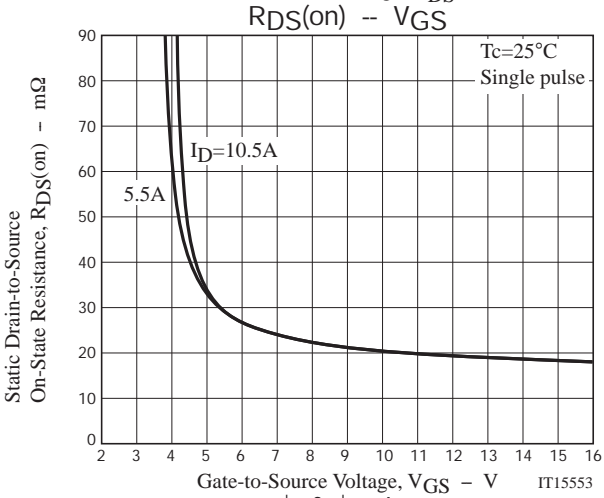
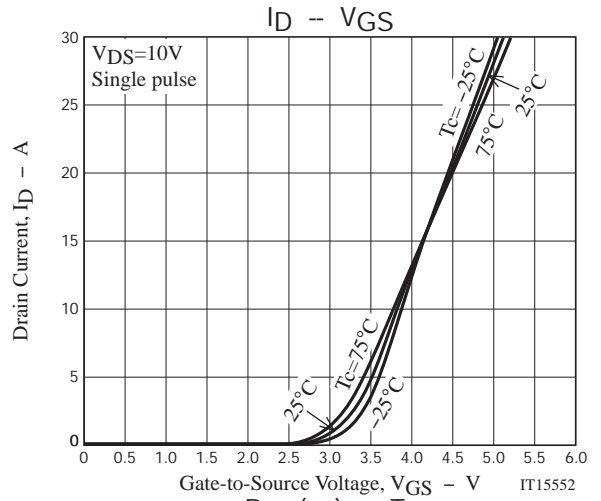
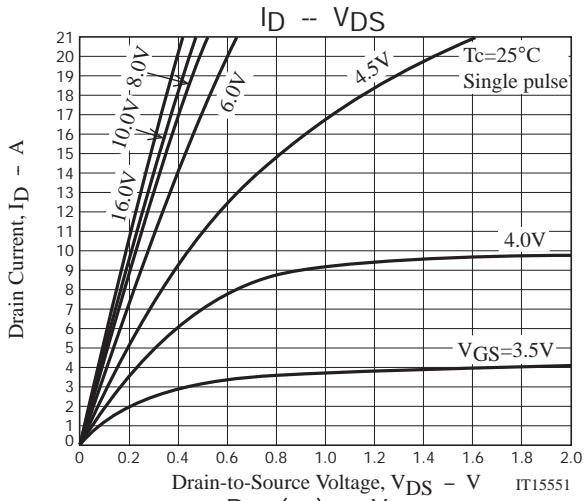
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=1\text{mA}, V_{GS}=0\text{V}$	40			V
Zero-Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=40\text{V}, V_{GS}=0\text{V}$			1	$\mu\text{A}$
Gate-to-Source Leakage Current	$I_{GSS}$	$V_{GS}=\pm 16\text{V}, V_{DS}=0\text{V}$			$\pm 10$	$\mu\text{A}$
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=10\text{V}, I_D=1\text{mA}$	1.7		2.6	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=10\text{V}, I_D=10.5\text{A}$		5.4		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=10.5\text{A}, V_{GS}=10\text{V}$		21	28	$\text{m}\Omega$
	$R_{DS(on)2}$	$I_D=5.5\text{A}, V_{GS}=4.5\text{V}$		40	56	$\text{m}\Omega$
Input Capacitance	$C_{iss}$	$V_{DS}=20\text{V}, f=1\text{MHz}$		715		pF
Output Capacitance	$C_{oss}$				85	pF
Reverse Transfer Capacitance	$C_{rss}$				65	pF
Turn-ON Delay Time	$t_{d(on)}$			10		ns
Rise Time	$t_r$	See specified Test Circuit.		42		ns
Turn-OFF Delay Time	$t_{d(off)}$			42		ns
Fall Time	$t_f$			38		ns
Total Gate Charge	$Q_g$	$V_{DS}=20\text{V}, V_{GS}=10\text{V}, I_D=21\text{A}$		14.4		nC
Gate-to-Source Charge	$Q_{gs}$			3.8		nC
Gate-to-Drain "Miller" Charge	$Q_{gd}$			3.1		nC
Diode Forward Voltage	$V_{SD}$		$I_S=21\text{A}, V_{GS}=0\text{V}$		0.96	1.2

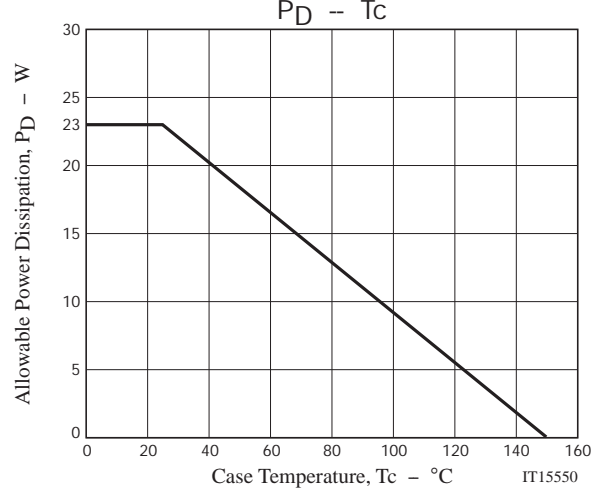
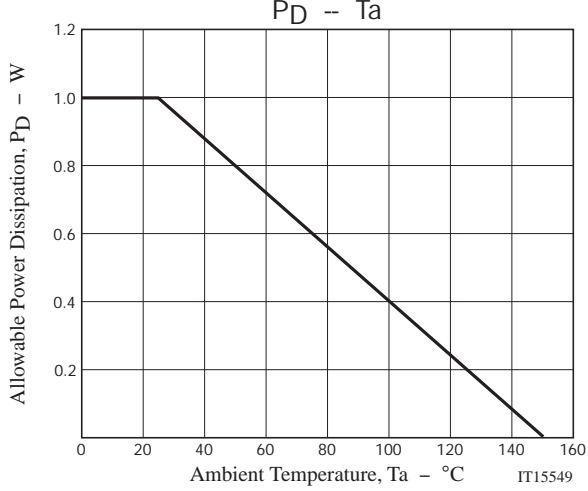
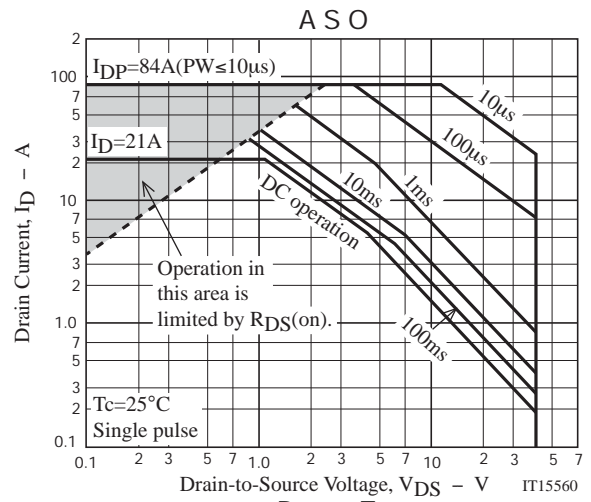
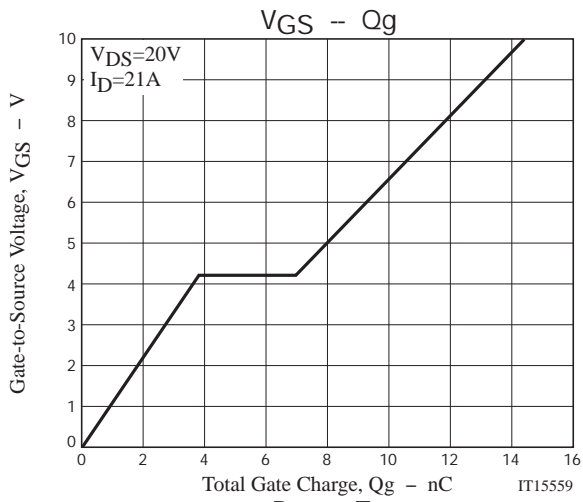
## Switching Time Test Circuit



## Ordering Information

Device	Package	Shipping	memo
SFT1450-H	TP	500pcs./bag	Pb Free and Halogen Free
SFT1450-TL-H	TP-FA	700pcs./reel	





Taping Specification

SFT1450-TL-H

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 Dimensions:mm (external) 183×72×185	6 inner boxes contained Dimensions:mm (external) 440×195×210

Packing method



Reel label, Inner box label (unit:mm)

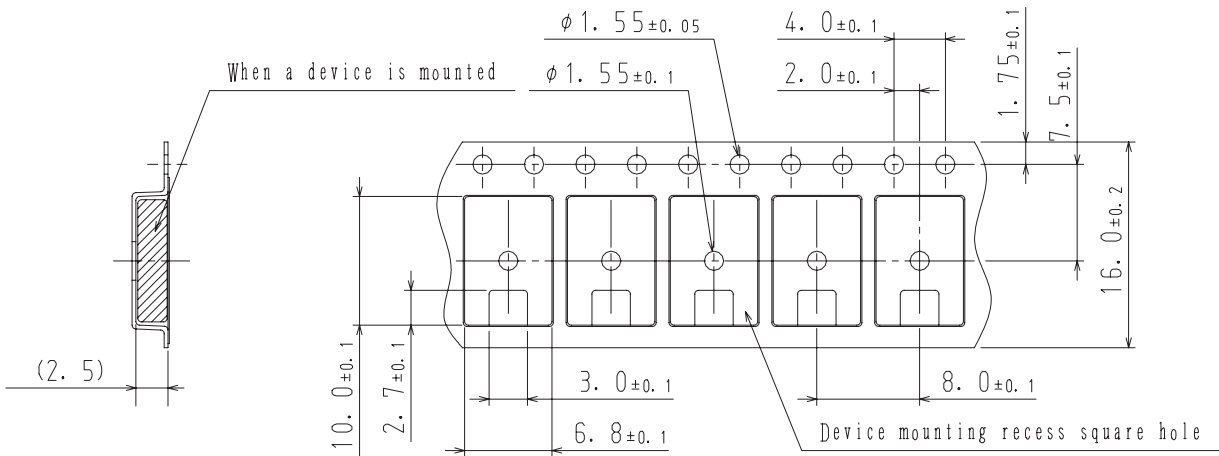
Outer box label  
It is a label at the time of factory shipments. The form of a label may change in physical distribution process.

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

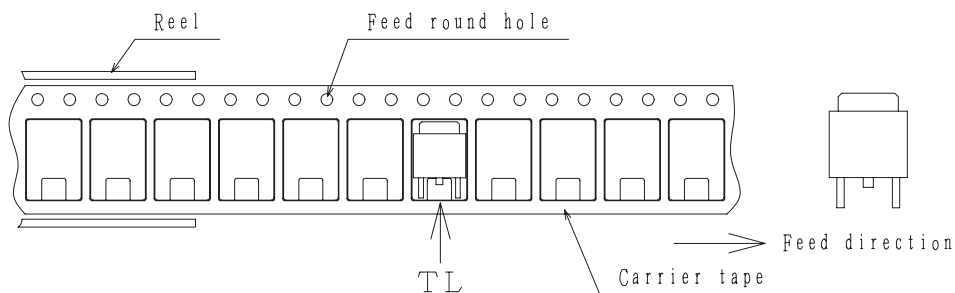
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

Taping configuration

1. Carrier tape size (unit:mm)

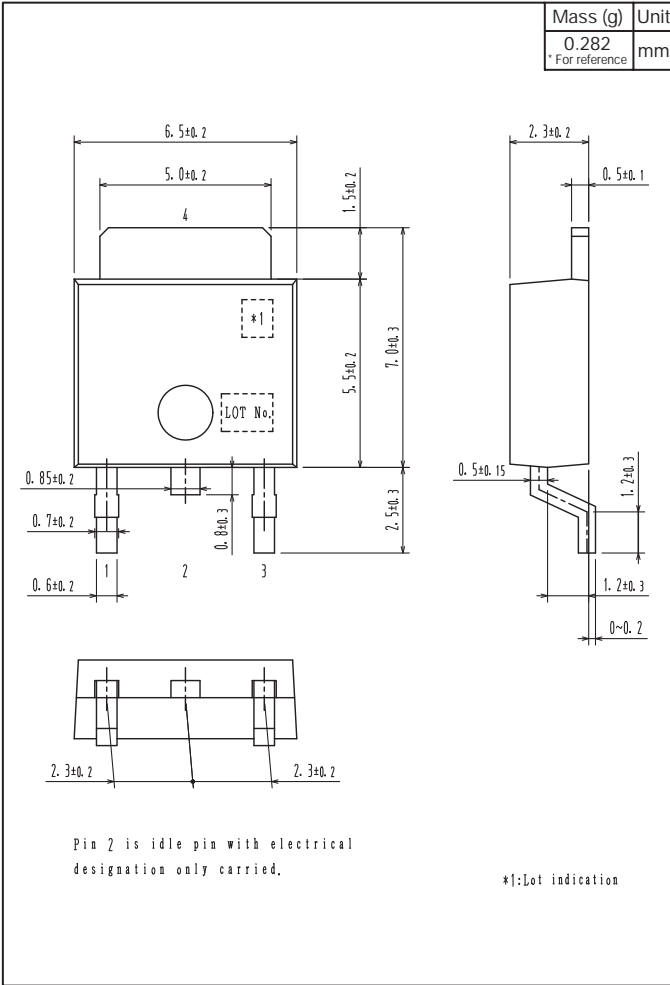


2. Device placement direction

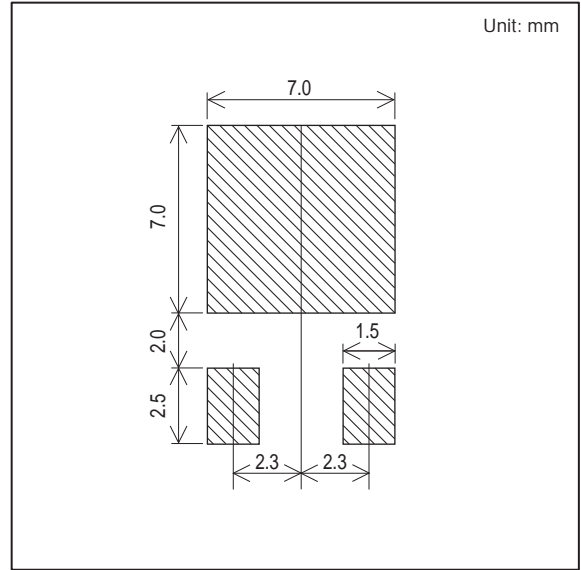


# SFT1450

## Outline Drawing SFT1450-TL-H



## Land Pattern Example



# SFT1450

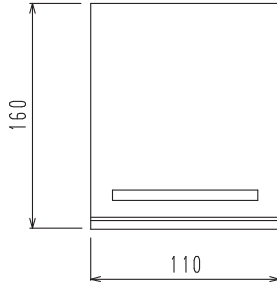
## Bag Packing Specification

SFT1450-H

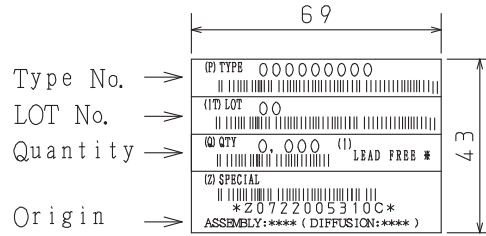
### 1. Packing Format

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)



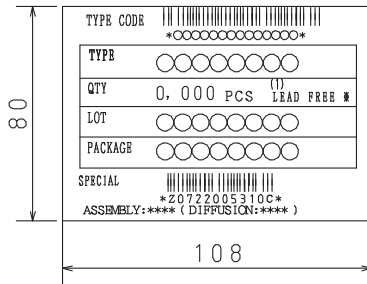
### 4. Outer box label (unit:mm)

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

#### NOTE (1)

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

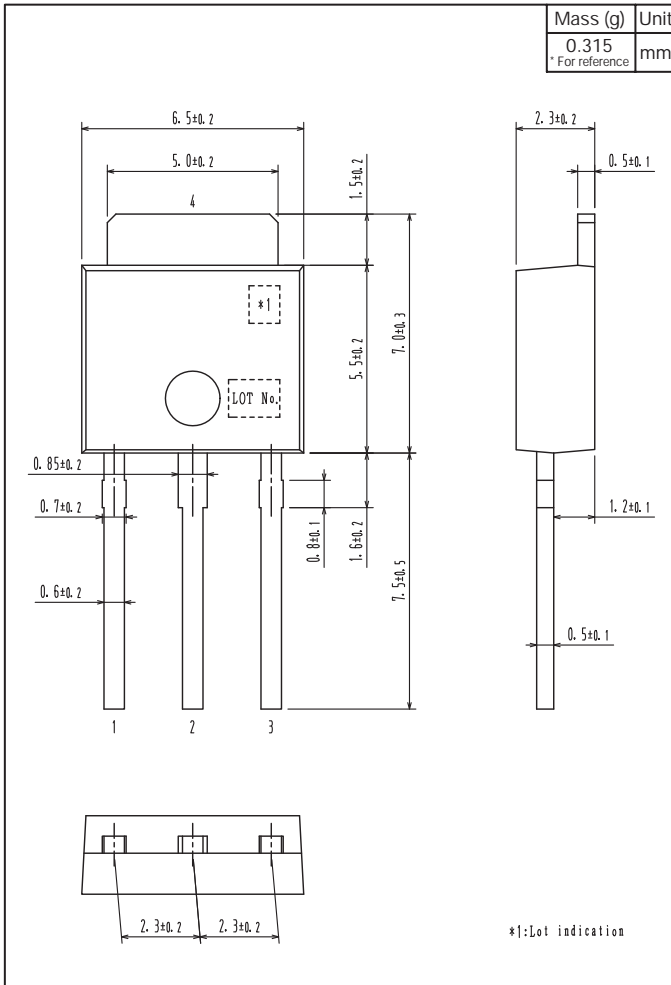
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3



# SFT1450

## Outline Drawing

SFT1450-H





Note on usage : Since the SFT1450 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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