



# SFT1450

## N-Channel Power MOSFET 40V, 21A, 28mΩ, Single TP/TP-FA

ON Semiconductor®

<http://onsemi.com>

### Features

- ON-resistance  $R_{DS(on)1}=21m\Omega$ (typ.)
- Input Capacitance  $C_{iss}=715pF$ (typ.)
- 4.5V drive
- Halogen free compliance
- Protection diode in

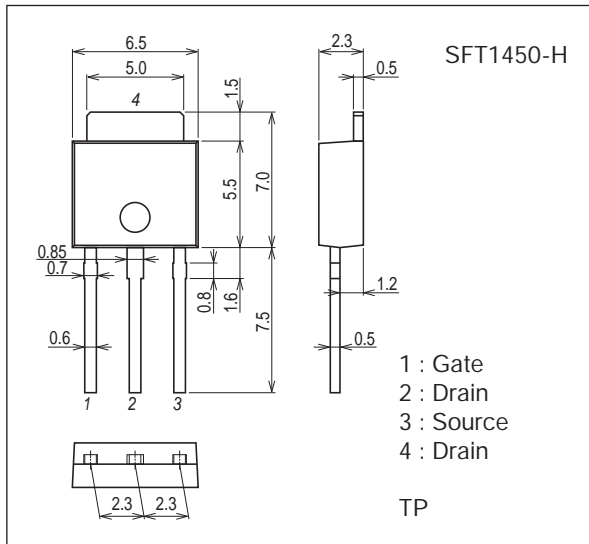
### Specifications

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

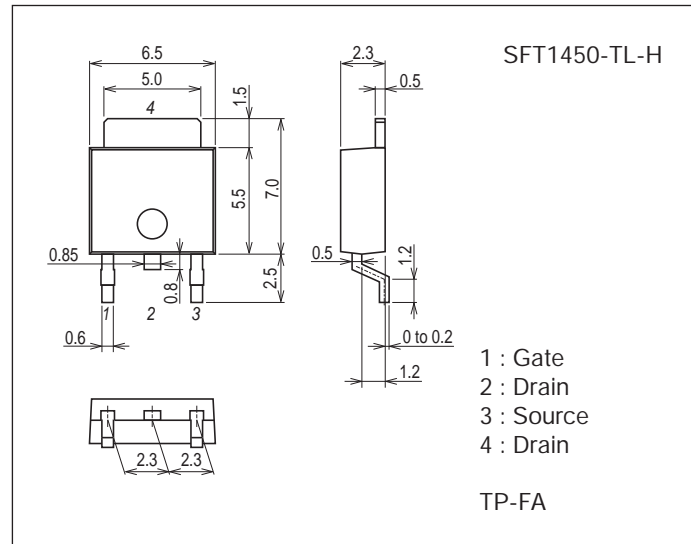
Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	$V_{DSS}$		40	V
Gate-to-Source Voltage	$V_{GSS}$		$\pm 20$	V
Drain Current (DC)	$I_D$		21	A
Drain Current (Pulse)	$I_{DP}$	$PW \leq 10\mu s$ , duty cycle $\leq 1\%$	84	A
Allowable Power Dissipation	$P_D$		1	W
		$T_c=25^\circ C$	23	W
Channel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

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

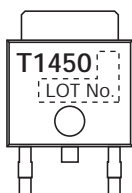


### Product & Package Information

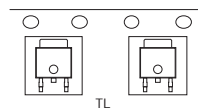
- Package : TP
- JEITA, JEDEC : SC-64, TO-251
- Minimum Packing Quantity : 500 pcs./bag

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

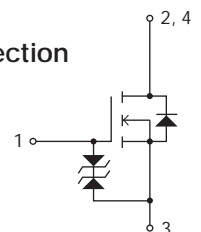
### Marking (TP, TP-FA)



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



### Electrical Connection

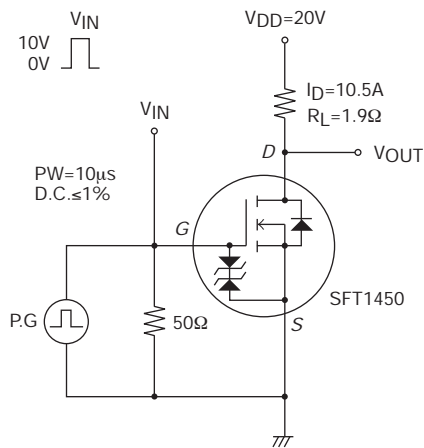


# SFT1450

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

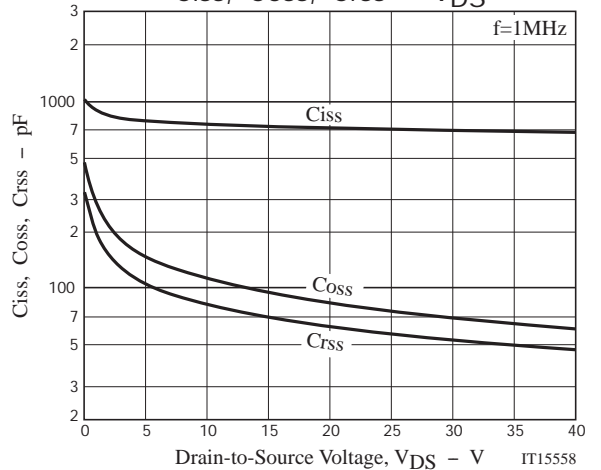
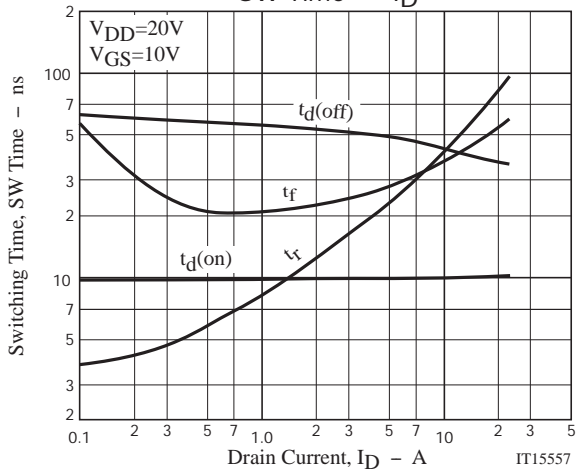
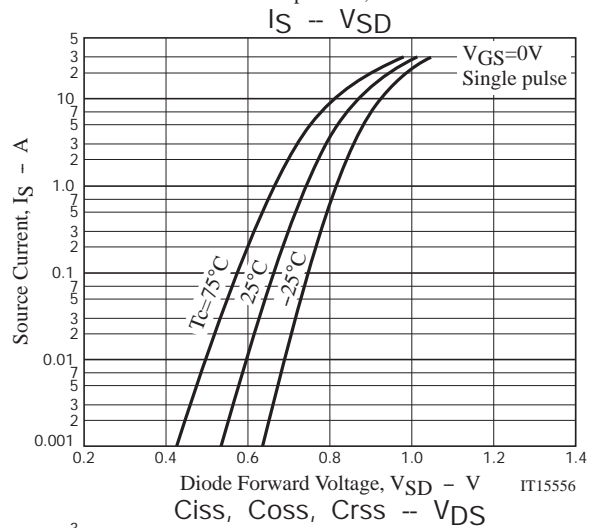
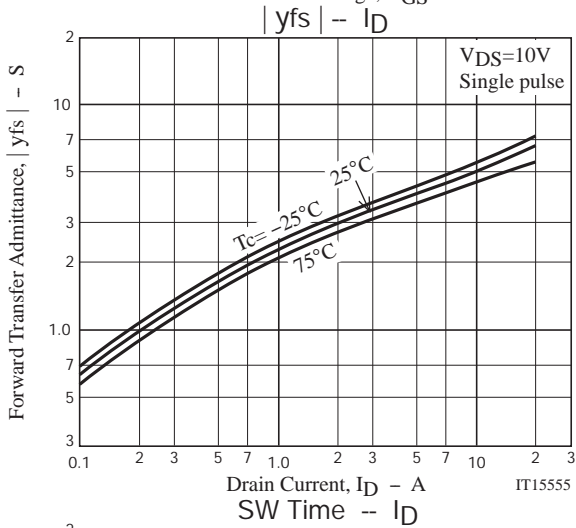
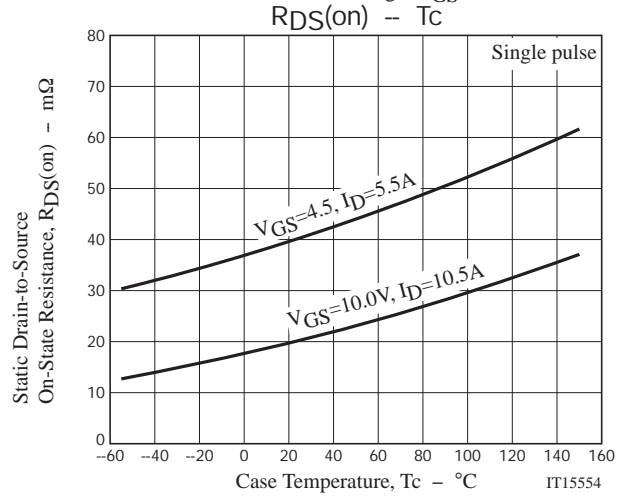
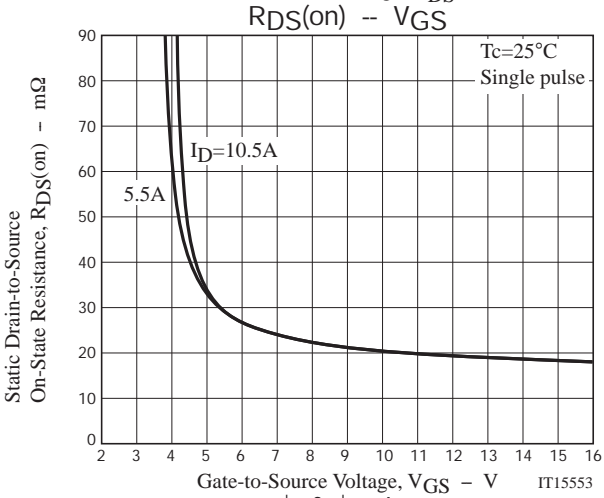
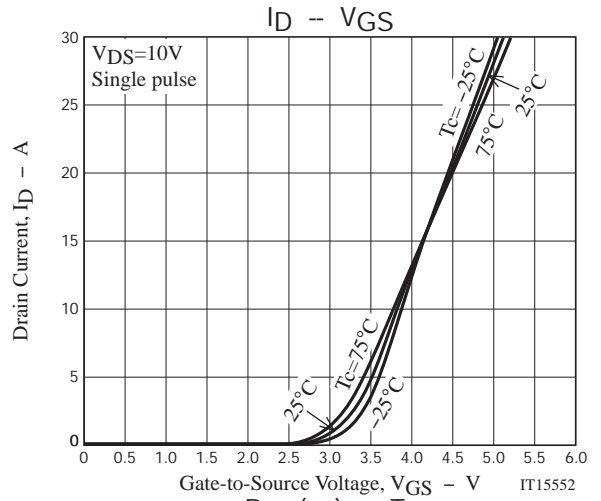
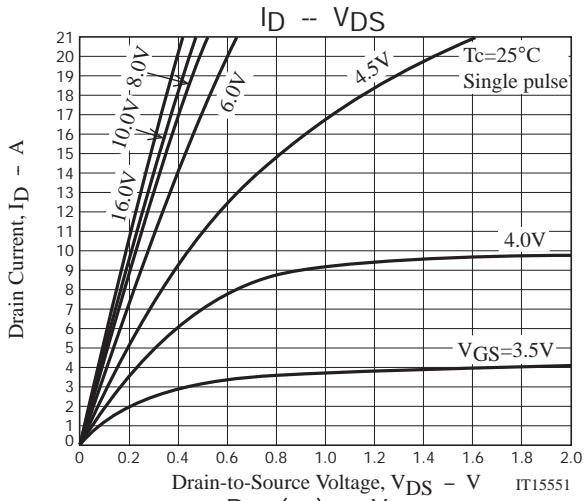
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=1\text{mA}, V_{GS}=0\text{V}$	40			V
Zero-Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=40\text{V}, V_{GS}=0\text{V}$			1	$\mu\text{A}$
Gate-to-Source Leakage Current	$I_{GSS}$	$V_{GS}=\pm 16\text{V}, V_{DS}=0\text{V}$			$\pm 10$	$\mu\text{A}$
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

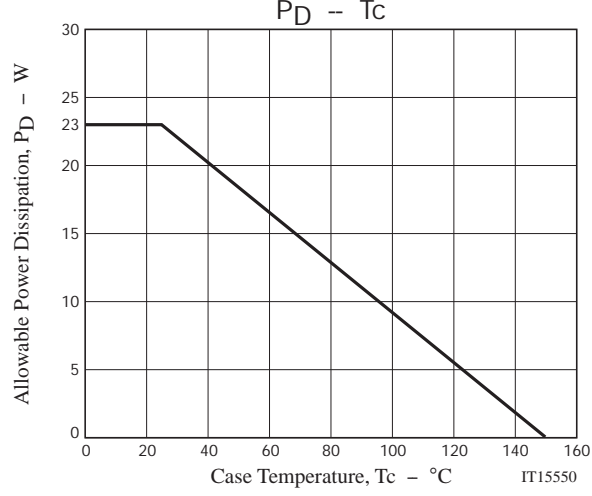
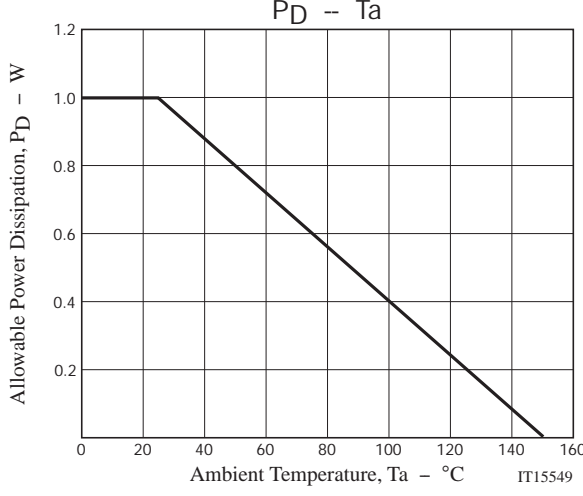
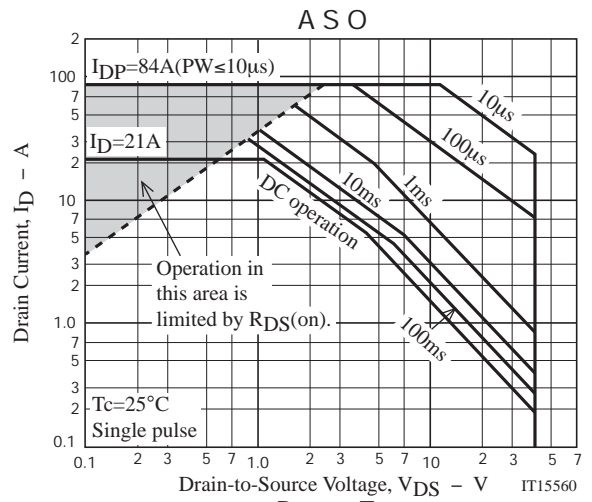
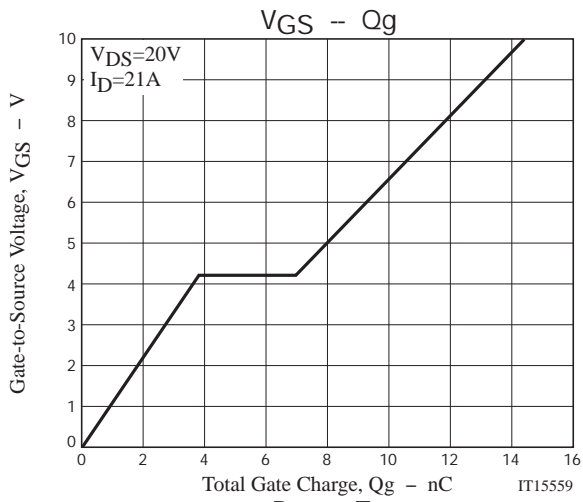
## Switching Time Test Circuit



## Ordering Information

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





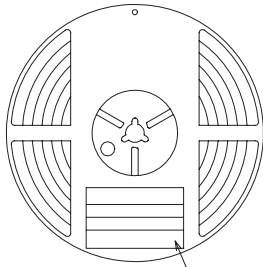
Taping Specification

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



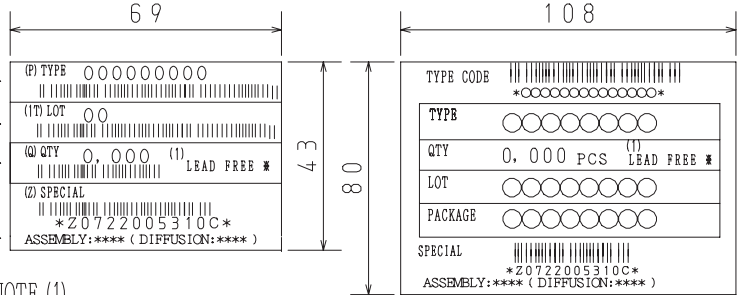
Type No.  
LOT No.  
Quantity  
Origin

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.



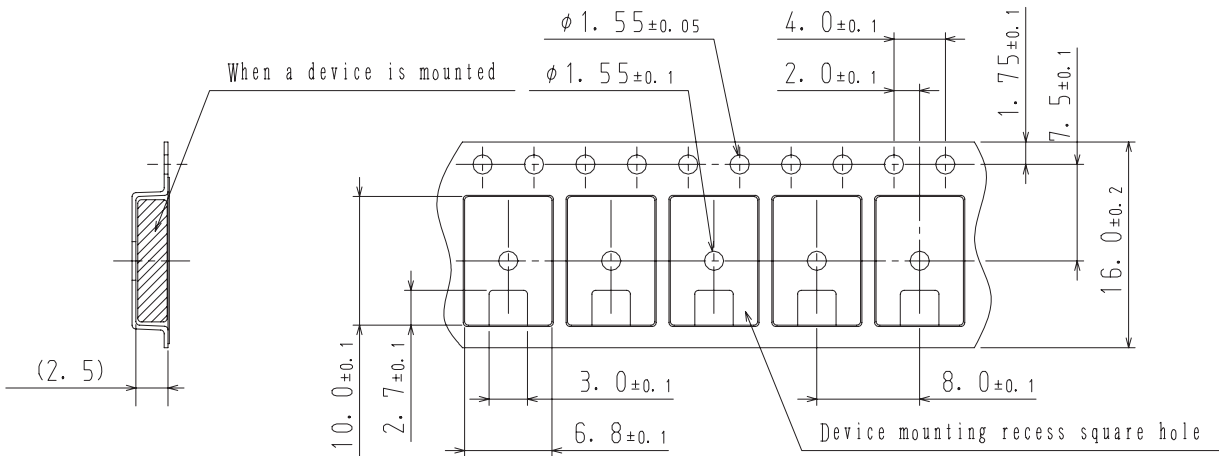
NOTE (1)

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

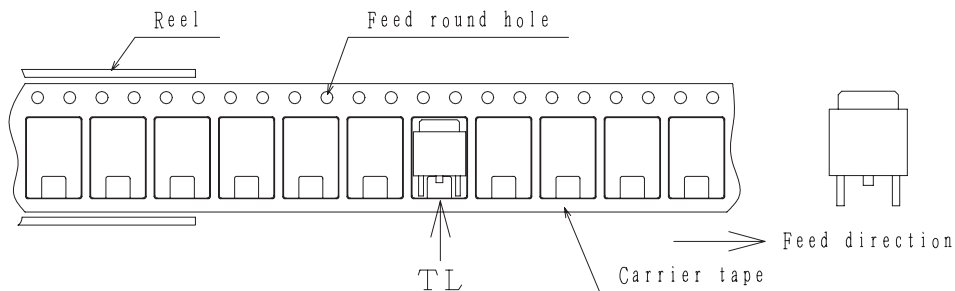
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

Taping configuration

1. Carrier tape size (unit:mm)



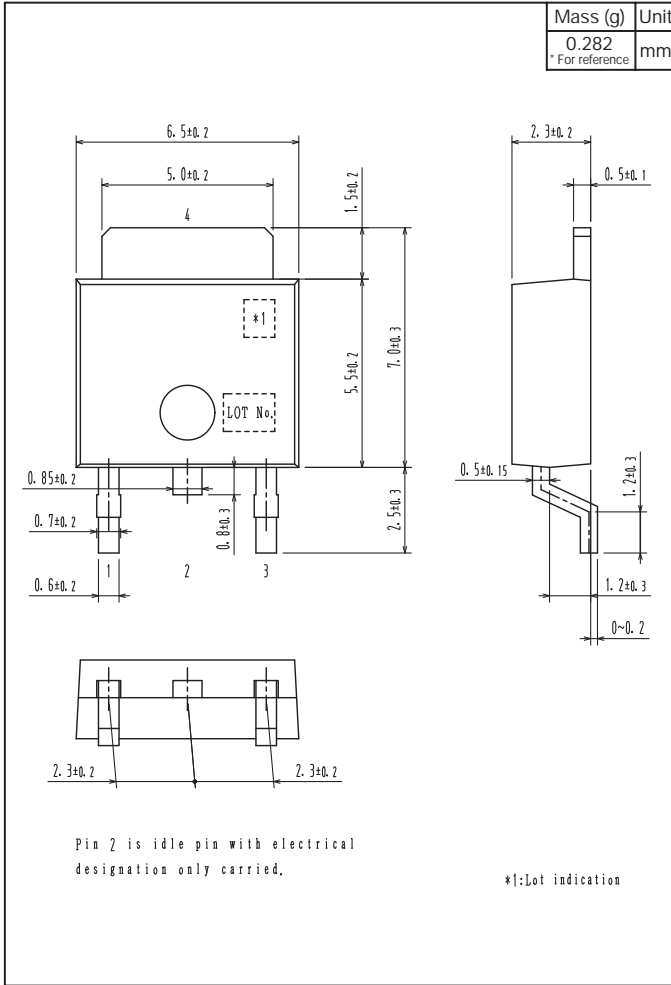
2. Device placement direction



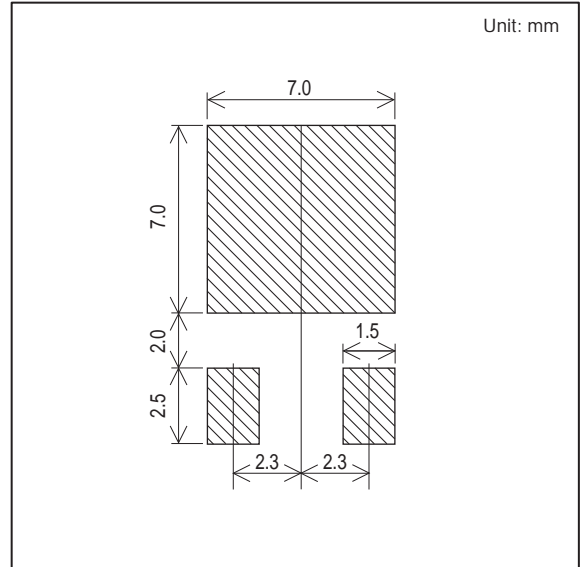
Those with one electrode terminal on the feed hole side.....TL

# SFT1450

## Outline Drawing SFT1450-TL-H



## Land Pattern Example



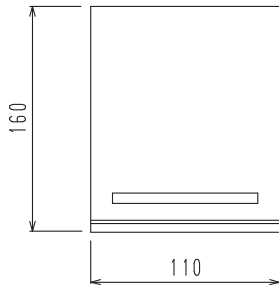
Bag Packing Specification

SFT1450-H

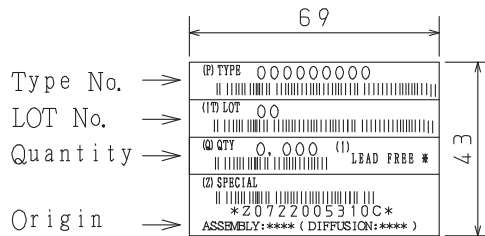
1. Packing Format

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)



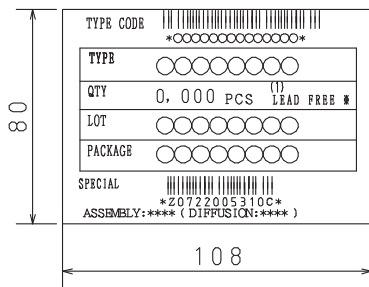
4. Outer box label  
(unit:mm)

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

NOTE (1)

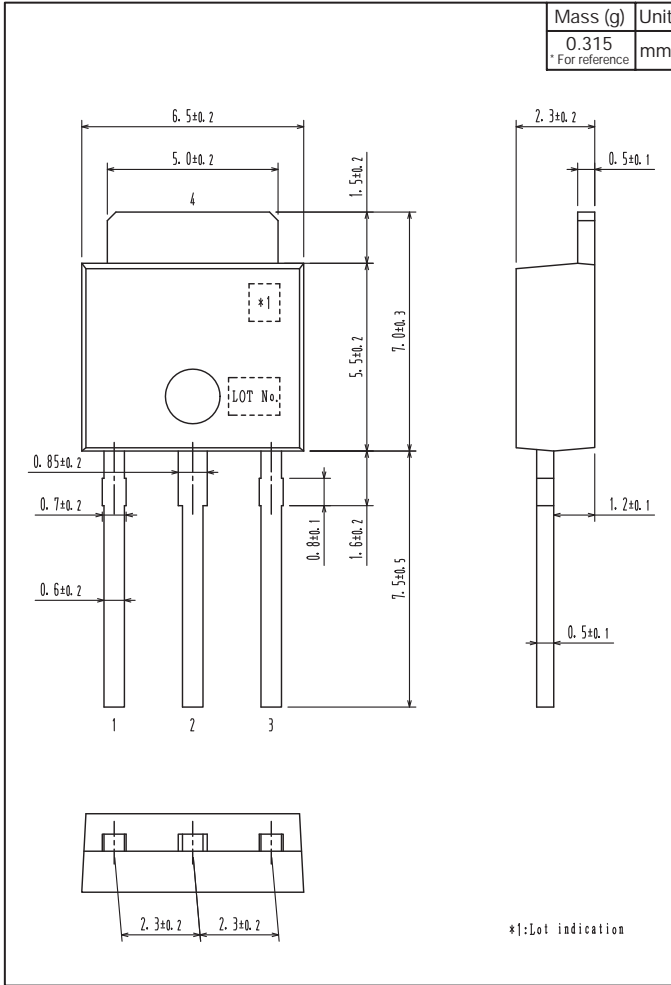
The LEAD FREE \* description shows that the surface treatment of the terminal is lead free.

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



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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