



# SFT1446

## N-Channel Power MOSFET 60V, 20A, 51mΩ, Single TP/TP-FA

ON Semiconductor®

<http://onsemi.com>

### Features

- ON-resistance  $R_{DS(on)1}=39m\Omega$ (typ.)
- 4V drive
- Protection diode in
- Input Capacitance  $C_{iss}=750pF$ (typ.)
- Halogen free compliance

### Specifications

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

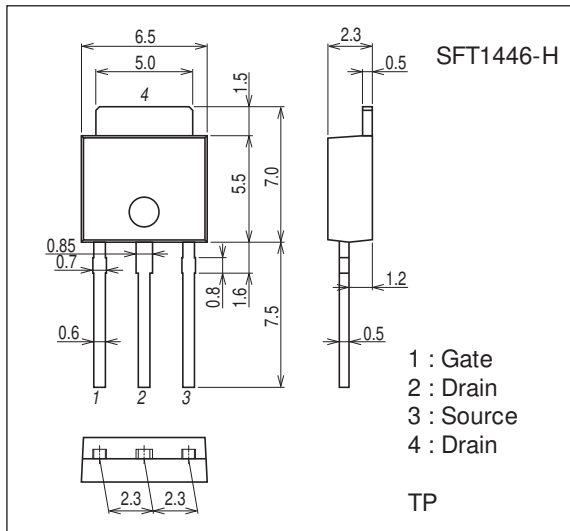
Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	$V_{DSS}$		60	V
Gate-to-Source Voltage	$V_{GSS}$		$\pm 20$	V
Drain Current (DC)	$I_D$		20	A
Drain Current (Pulse)	$I_{DP}$	$PW \leq 10\mu s$ , duty cycle $\leq 1\%$	80	A
Allowable Power Dissipation	PD		1	W
		$T_c=25^\circ C$	23	W
Channel 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)

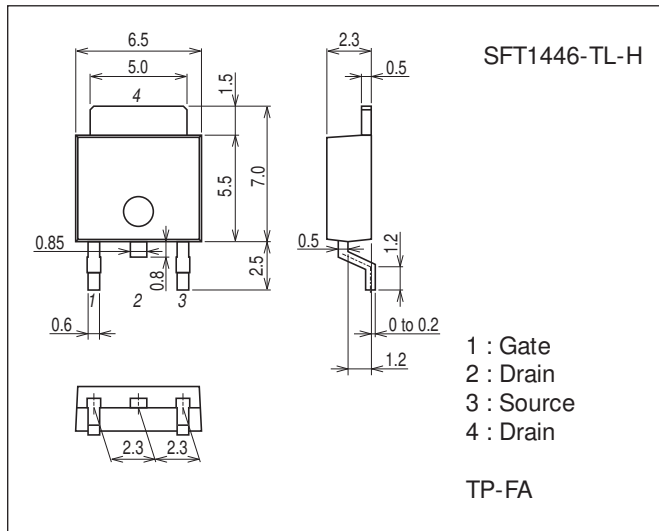
7518-004



### Package Dimensions

unit : mm (typ)

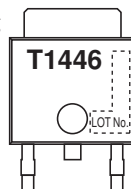
7003-004



### Product & Package Information

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

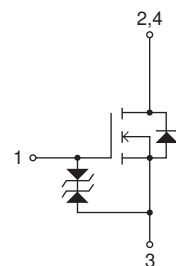
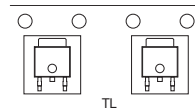
### Marking(TP, TP-FA)



### Product & Package Information

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

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

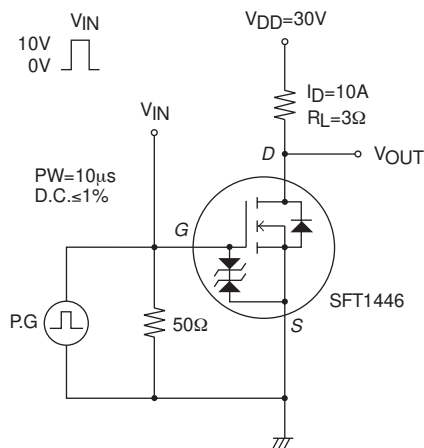


# SFT1446

## Electrical Characteristics at Ta=25°C

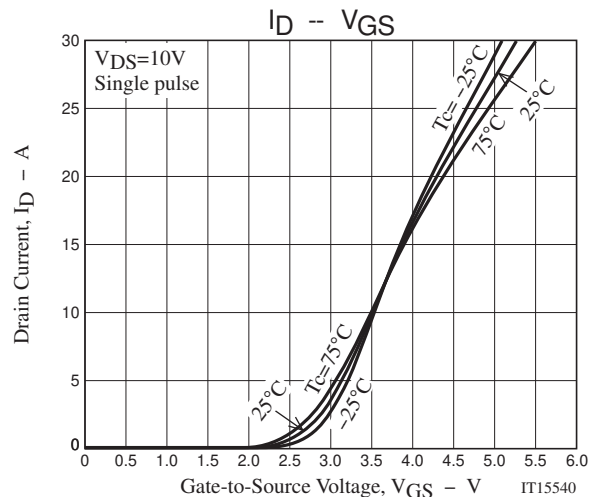
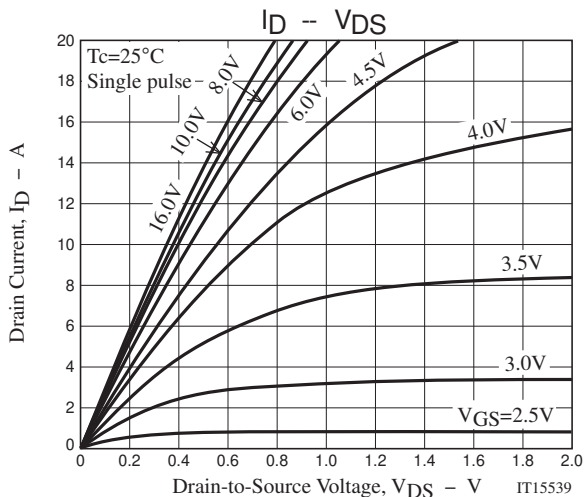
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	V(BR)DSS	ID=1mA, VGS=0V	60			V
Zero-Gate Voltage Drain Current	IDSS	VDS=60V, VGS=0V			1	μA
Gate-to-Source Leakage Current	IGSS	VGS=±16V, VDS=0V			±10	μA
Cutoff Voltage	VGS(off)	VDS=10V, ID=1mA	1.2		2.6	V
Forward Transfer Admittance	yfs	VDS=10V, ID=10A		7.0		S
Static Drain-to-Source On-State Resistance	RDS(on)1	ID=10A, VGS=10V		39	51	mΩ
	RDS(on)2	ID=5A, VGS=4.5V		54	76	mΩ
	RDS(on)3	ID=5A, VGS=4V		62	87	mΩ
Input Capacitance	Ciss	VDS=20V, f=1MHz		750		pF
Output Capacitance	Coss			59		pF
Reverse Transfer Capacitance	Crss			47		pF
Turn-ON Delay Time	td(on)		See specified Test Circuit.		8.5	
Rise Time	tr			31		ns
Turn-OFF Delay Time	td(off)			60		ns
Fall Time	tf			48		ns
Total Gate Charge	Qg	VDS=30V, VGS=10V, ID=14A			16	
Gate-to-Source Charge	Qgs			3.3		nC
Gate-to-Drain "Miller" Charge	Qgd			3.6		nC
Diode Forward Voltage	VSD	IS=20A, VGS=0V		1.01	1.2	V

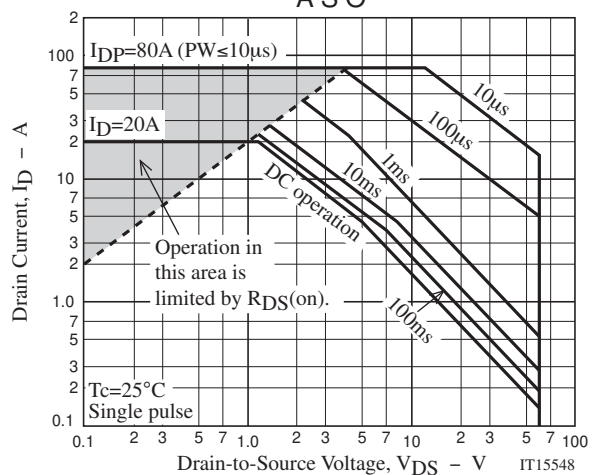
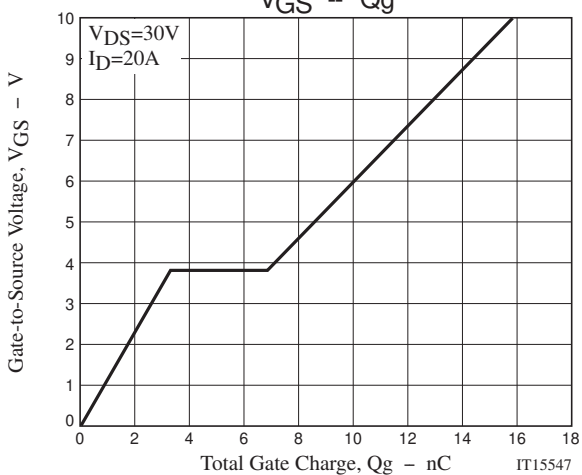
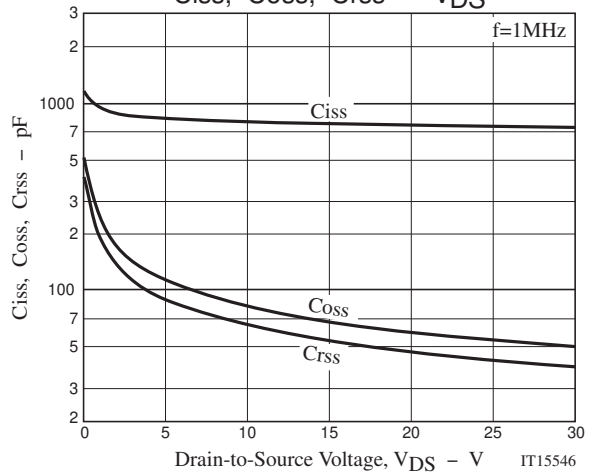
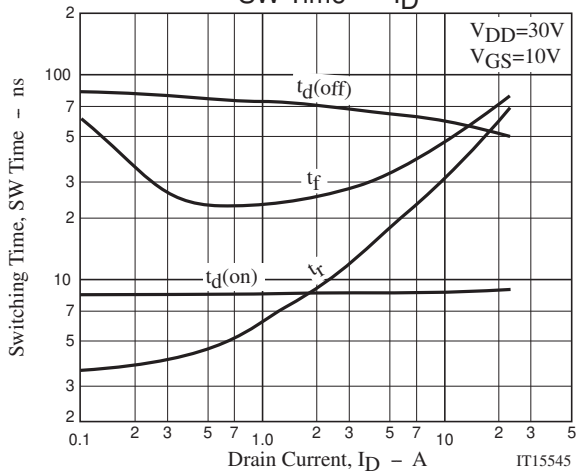
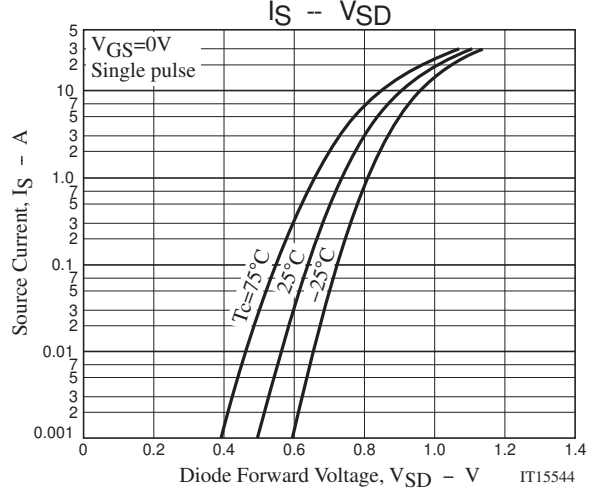
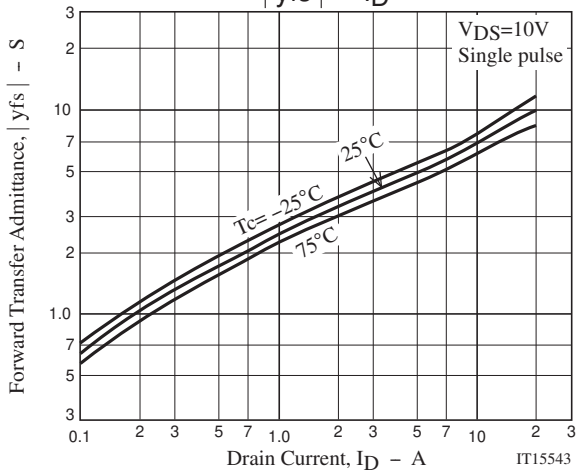
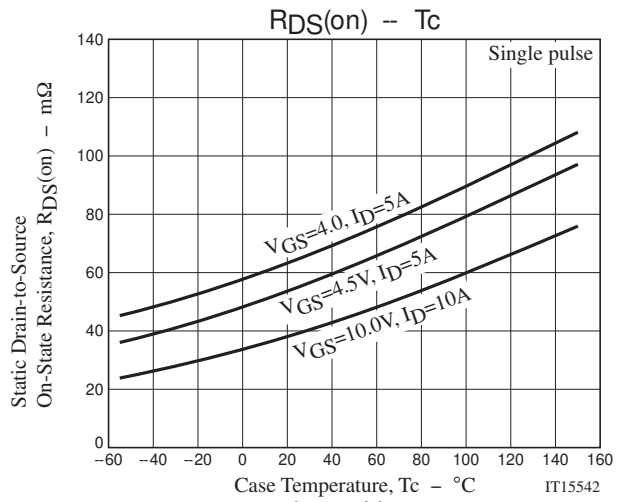
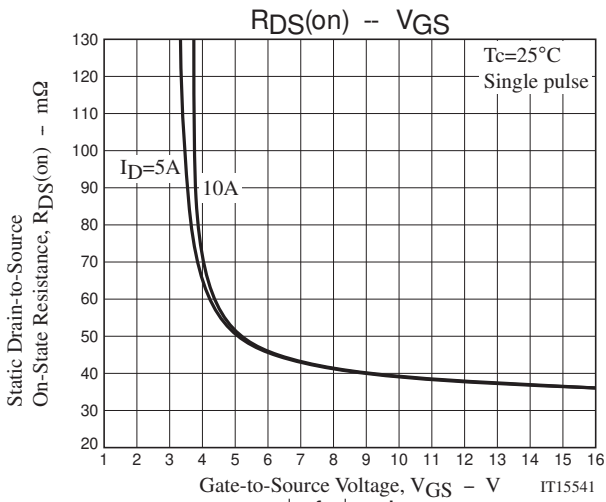
## Switching Time Test Circuit

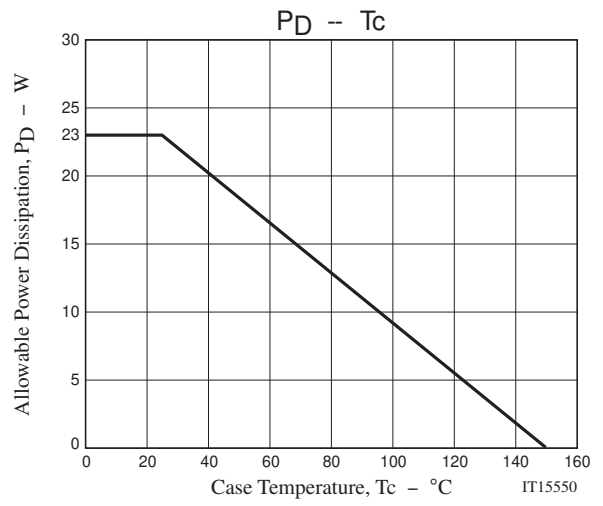
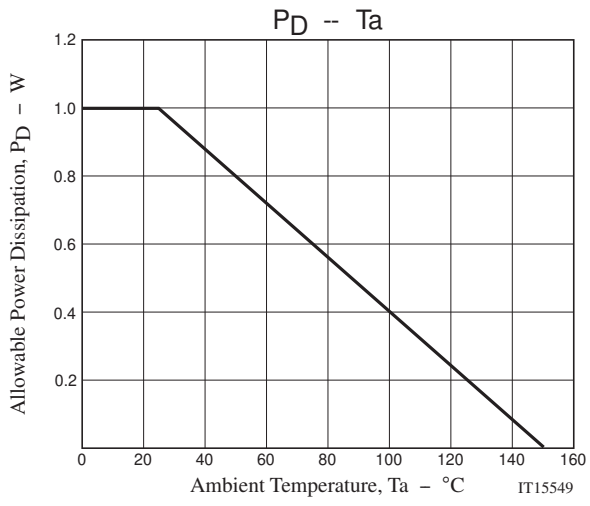


## Ordering Information

Device	Package	Shipping	memo
SFT1446-H	TP	500pcs./bag	Pb Free and Halogen Free
SFT1446-TL-H	TP-FA	700pcs./reel	







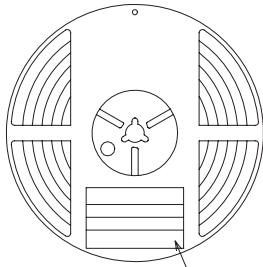
Taping Specification

SFT1446-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



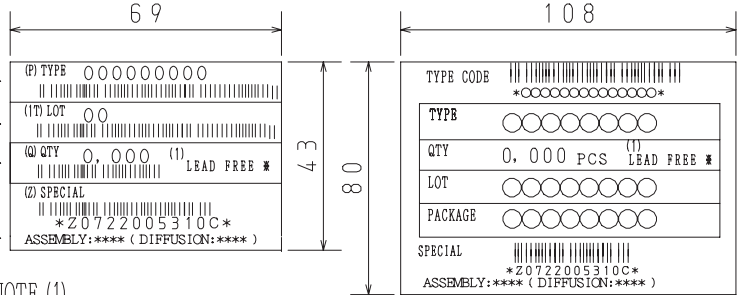
Type No.  
LOT No.  
Quantity  
Origin

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.



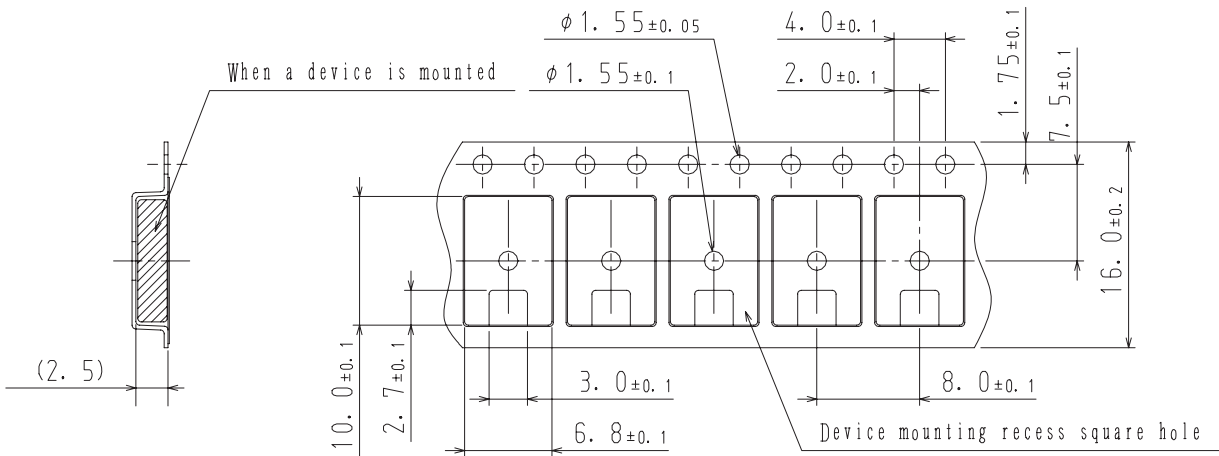
NOTE (1)

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

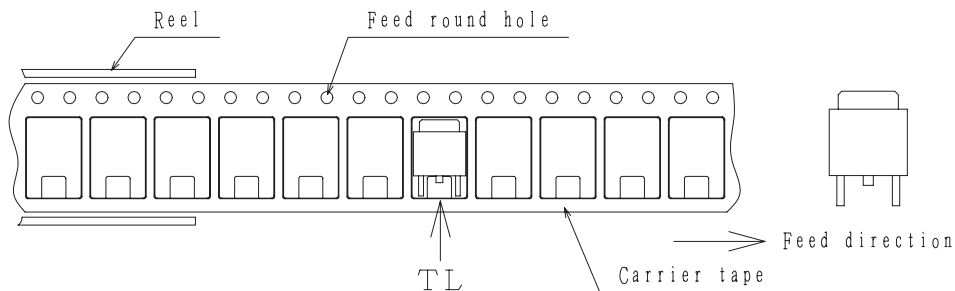
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

Taping configuration

1. Carrier tape size (unit:mm)



2. Device placement direction

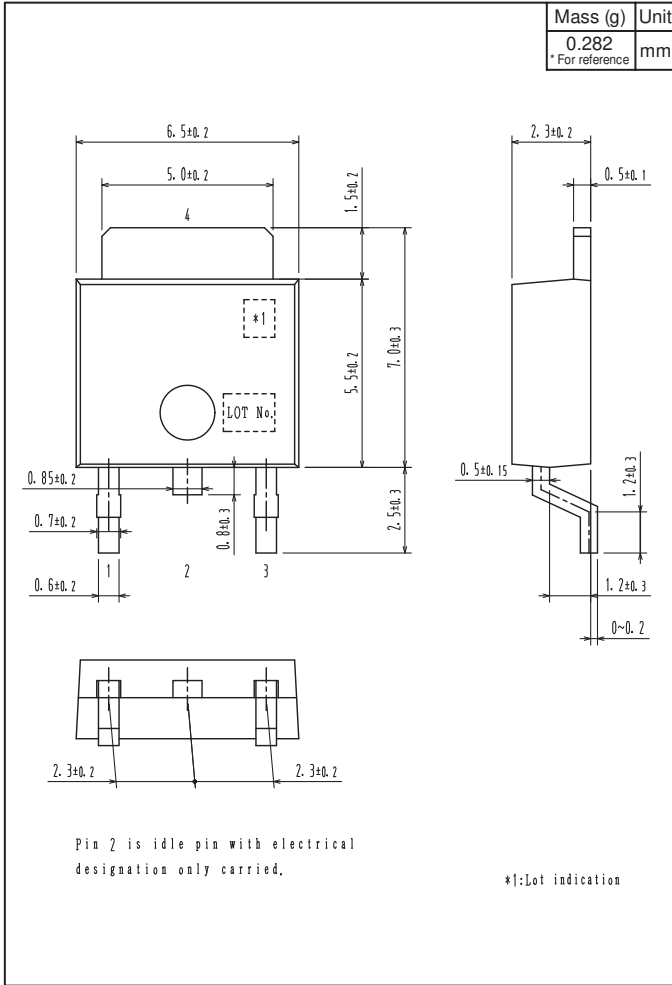


Those with one electrode terminal on the feed hole side.....TL

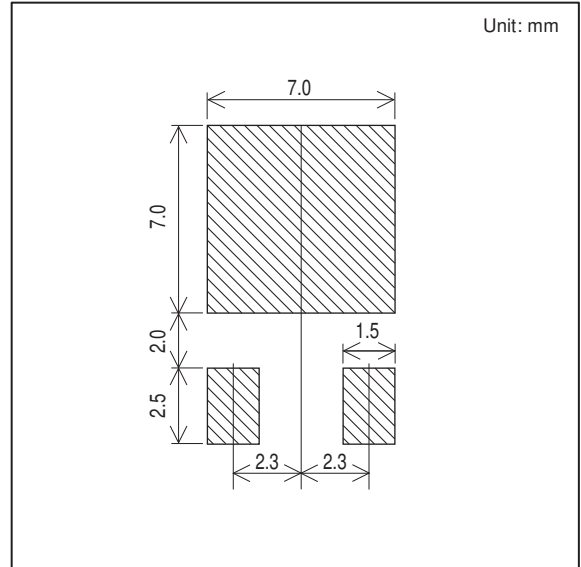
# SFT1446

## Outline Drawing

SFT1446-TL-H



## Land Pattern Example



# SFT1446

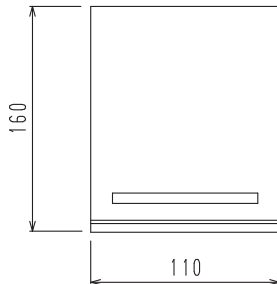
## Bag Packing Specification

SFT1446-H

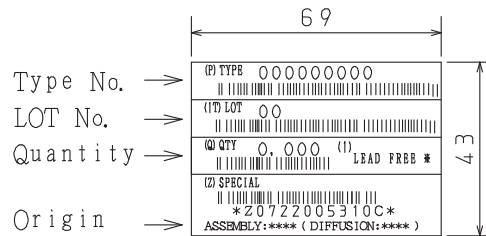
### 1. Packing Format

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)



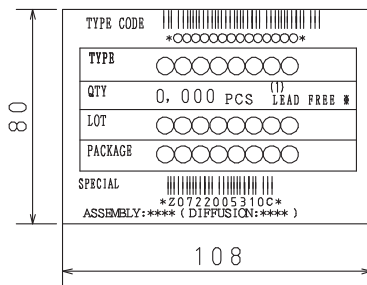
### 4. Outer box label (unit:mm)

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.

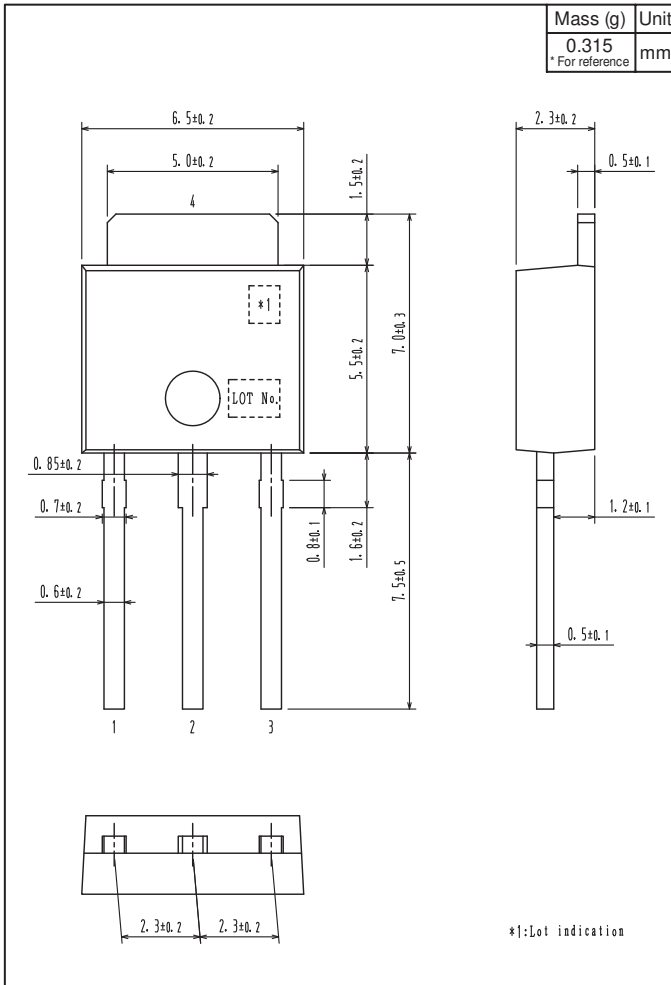
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3



# SFT1446

## Outline Drawing

SFT1446-H





Note on usage : Since the SFT1446 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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