



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 $T_a=25^\circ C$

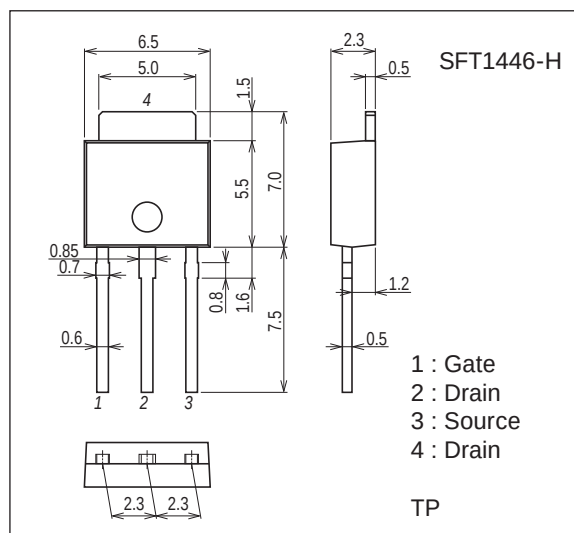
Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DS}		60	V
Gate-to-Source Voltage	V_{GS}		± 20	V
Drain Current (DC)	I_D		20	A
Drain Current (Pulse)	I_{DP}	$PW \leq 10\mu s$, duty cycle $\leq 1\%$	80	A
Allowable Power Dissipation	P_D		1	W
		$T_c=25^\circ C$	23	W
Channel Temperature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

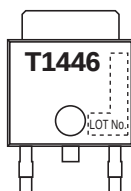
7518-004



Product & Package Information

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

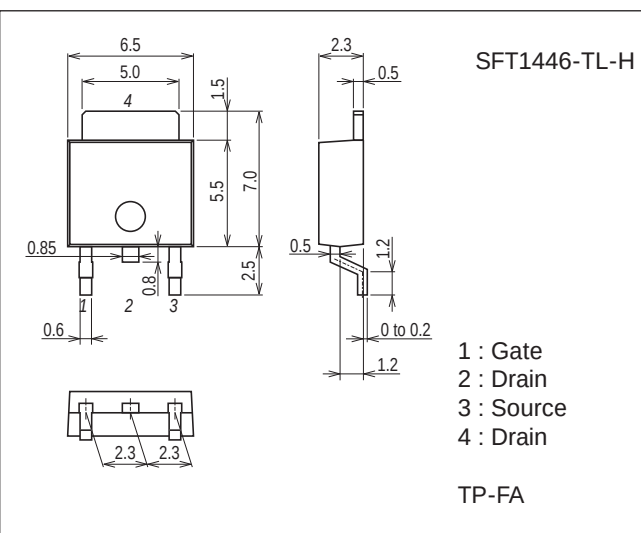
Marking(TP, TP-FA)



Package Dimensions

unit : mm (typ)

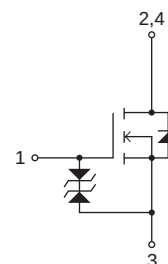
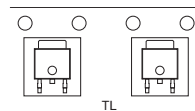
7003-004



Product & Package Information

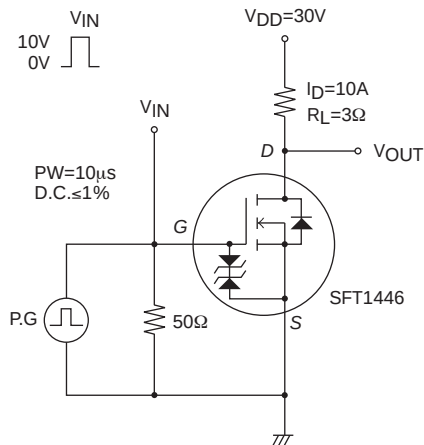
- Package : TP-FA
- JEITA, JEDEC : SC-63, TO-252
- Minimum Packing Quantity : 700 pcs./reel

Taping Type(TP-FA) : TL

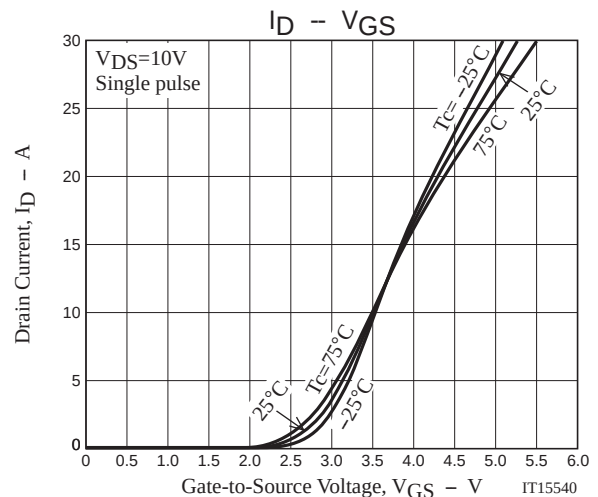
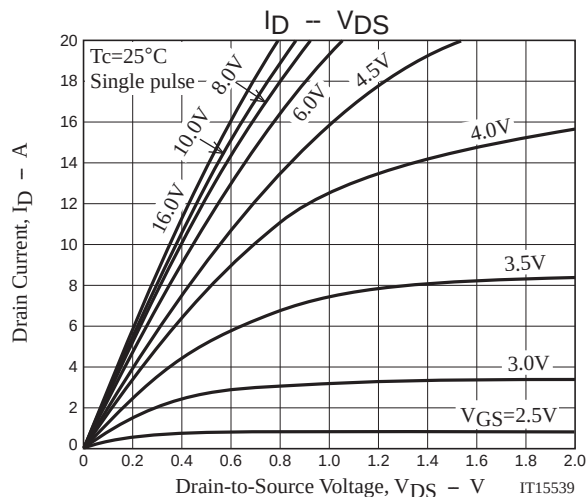


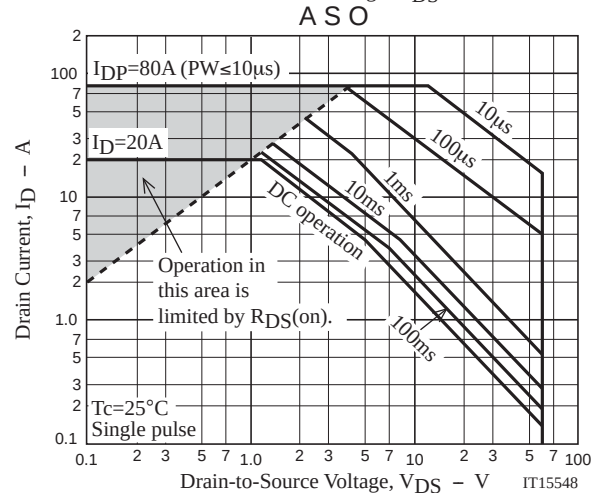
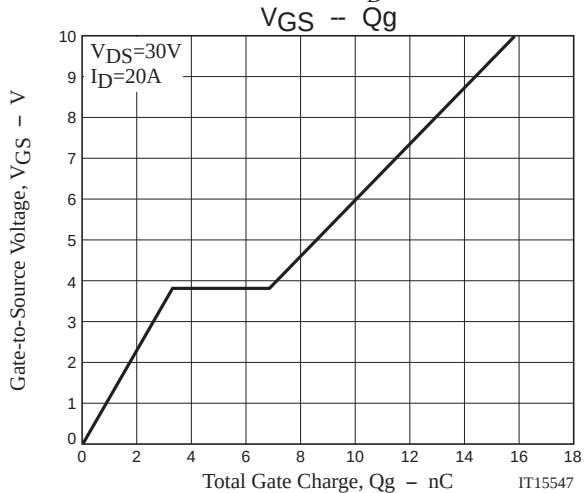
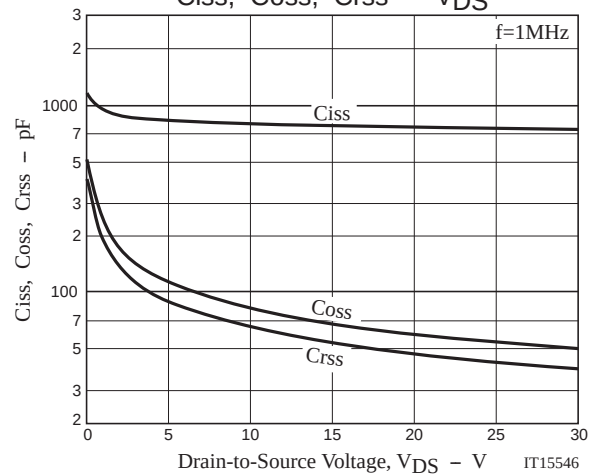
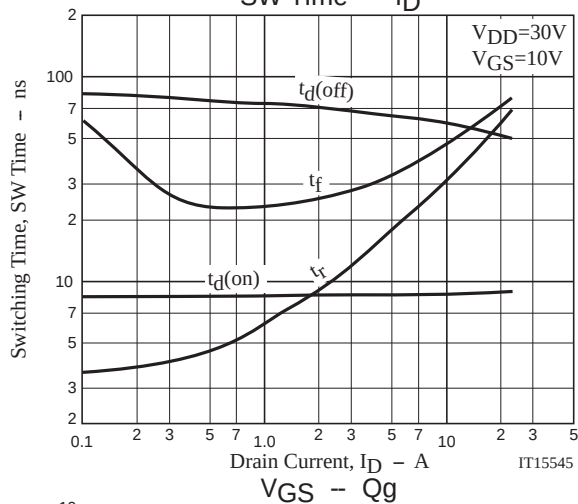
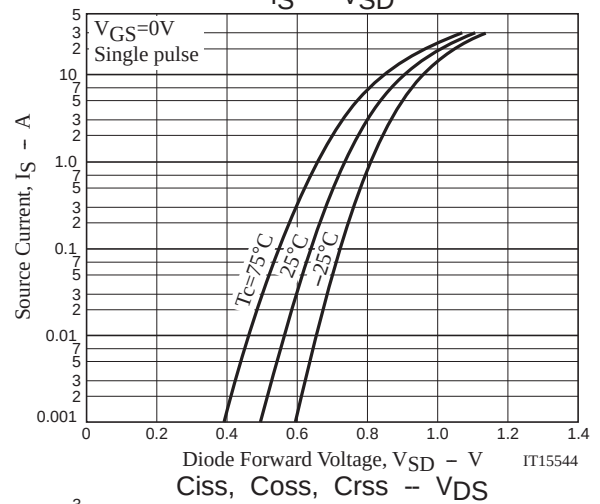
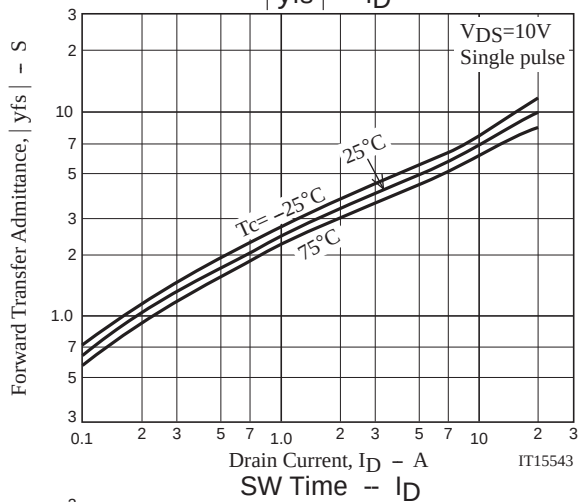
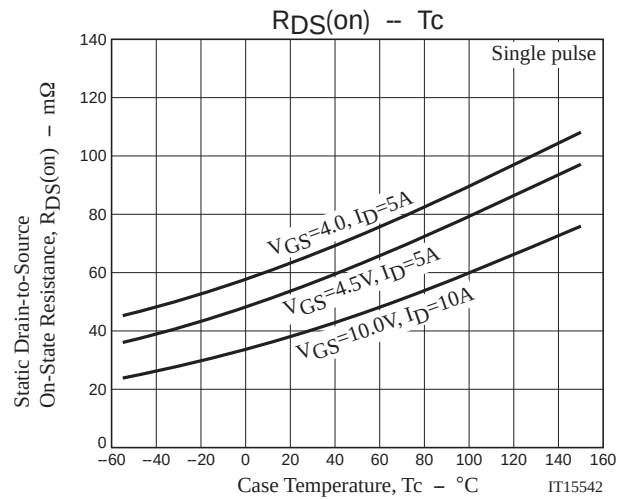
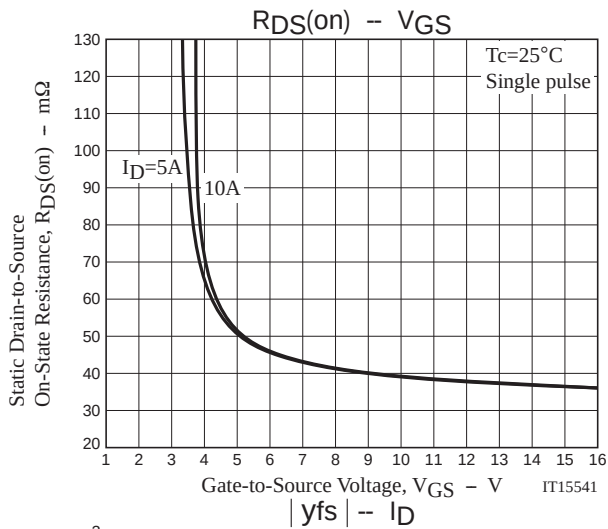
Electrical Characteristics at $T_a=25^{\circ}\text{C}$

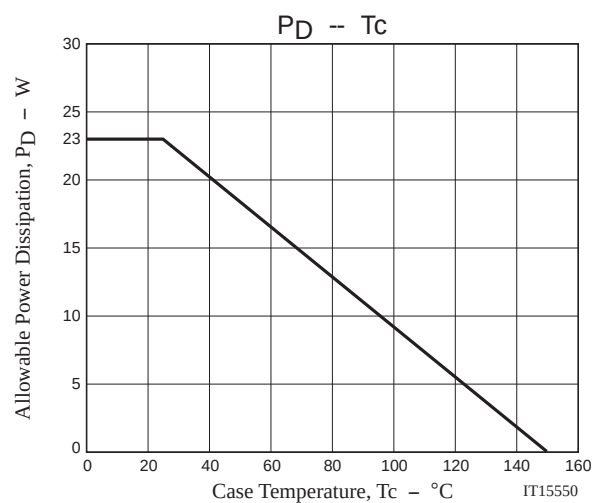
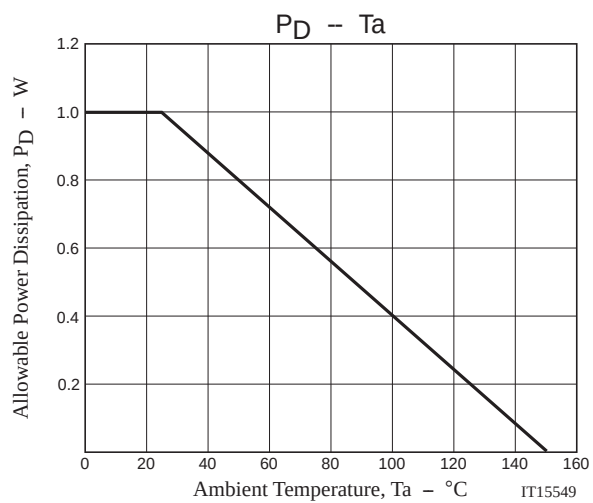
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=1\text{mA}$, $V_{GS}=0\text{V}$	60			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS}=60\text{V}$, $V_{GS}=0\text{V}$			1	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 16\text{V}$, $V_{DS}=0\text{V}$			± 10	μA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=10\text{V}$, $I_D=1\text{mA}$	1.2		2.6	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=10\text{V}$, $I_D=10\text{A}$		7.0		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=10\text{A}$, $V_{GS}=10\text{V}$		39	51	$\text{m}\Omega$
	$R_{DS(on)2}$	$I_D=5\text{A}$, $V_{GS}=4.5\text{V}$		54	76	$\text{m}\Omega$
	$R_{DS(on)3}$	$I_D=5\text{A}$, $V_{GS}=4\text{V}$		62	87	$\text{m}\Omega$
Input Capacitance	C_{iss}	$V_{DS}=20\text{V}$, $f=1\text{MHz}$		750		pF
Output Capacitance	C_{oss}			59		pF
Reverse Transfer Capacitance	C_{rss}			47		pF
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		8.5		ns
Rise Time	t_r			31		ns
Turn-OFF Delay Time	$t_{d(off)}$			60		ns
Fall Time	t_f			48		ns
Total Gate Charge	Q_g	$V_{DS}=30\text{V}$, $V_{GS}=10\text{V}$, $I_D=14\text{A}$		16		nC
Gate-to-Source Charge	Q_{gs}			3.3		nC
Gate-to-Drain "Miller" Charge	Q_{gd}			3.6		nC
Diode Forward Voltage	V_{SD}	$I_S=20\text{A}$, $V_{GS}=0\text{V}$		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	







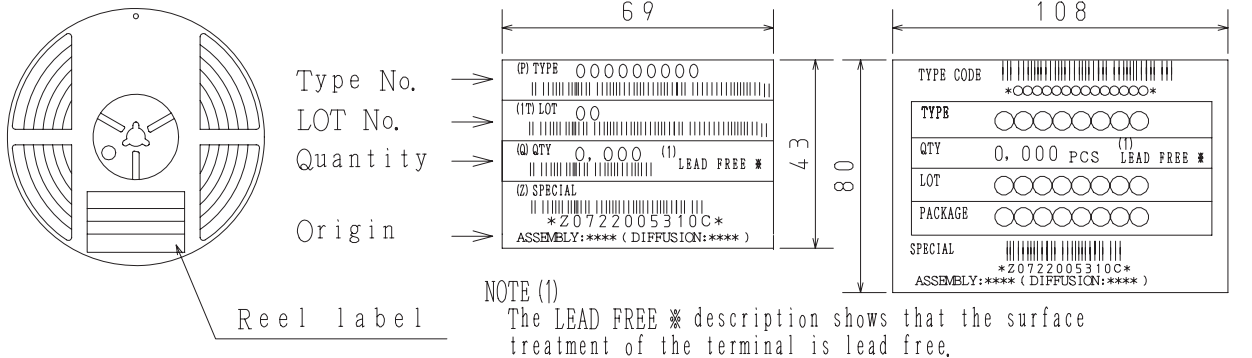
Taping Specification

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

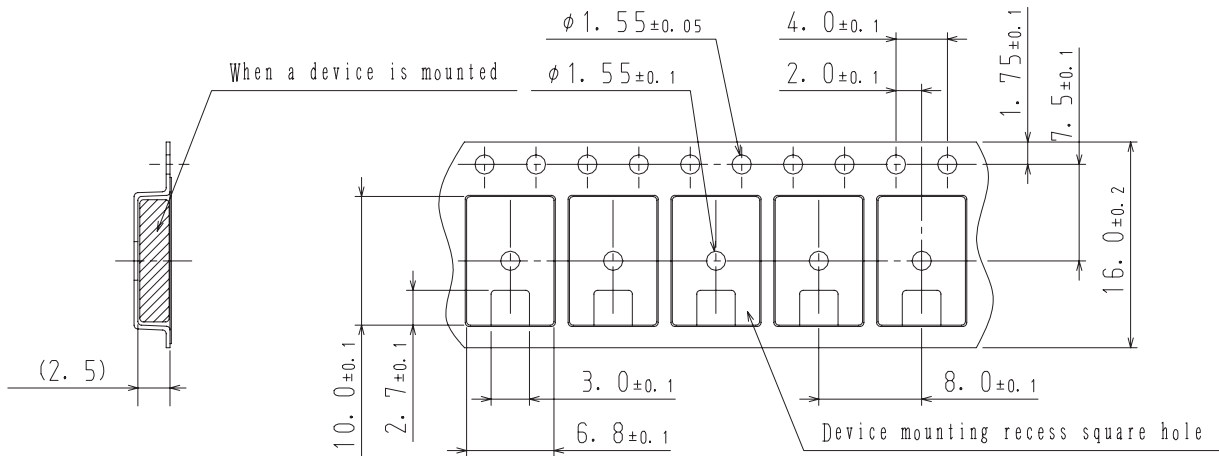
Packing method



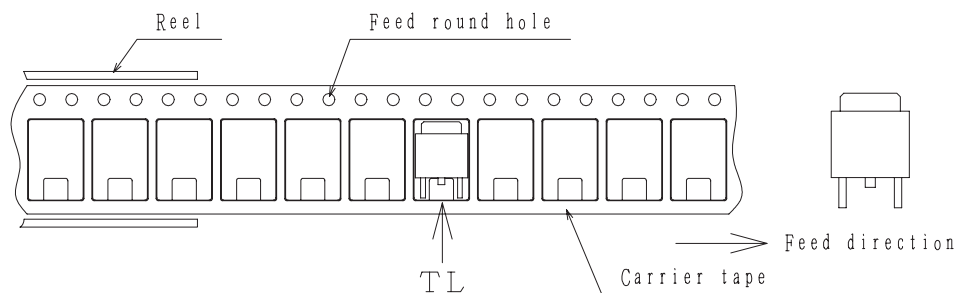
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

Taping configuration

1. Carrier tape size (unit:mm)

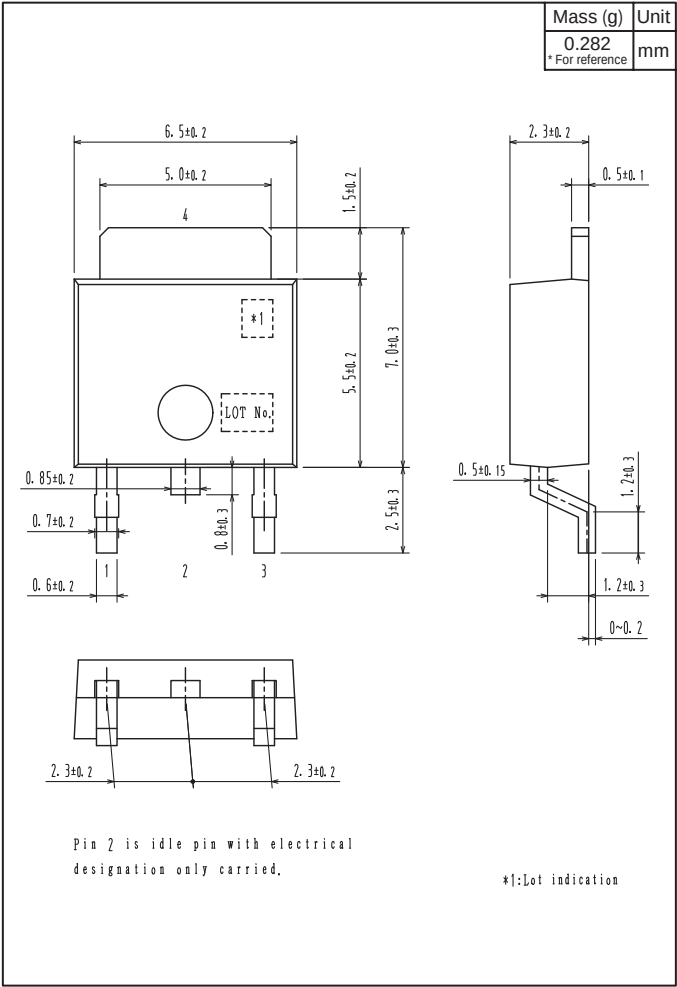


2. Device placement direction

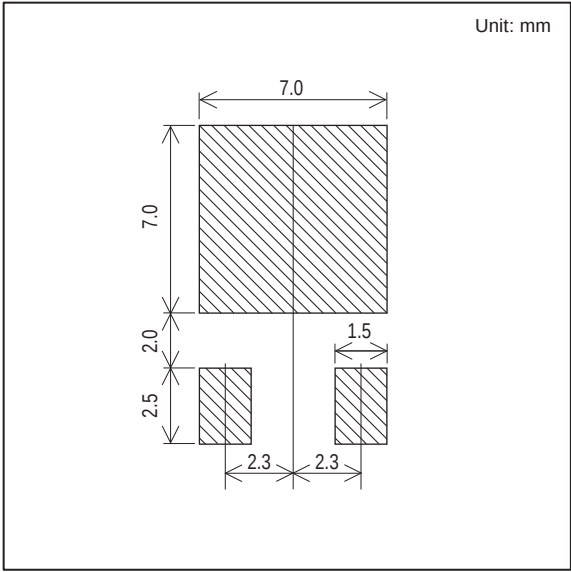


Those with one electrode terminal on the feed hole side.....TL

Outline Drawing
SFT1446-TL-H



Land Pattern Example

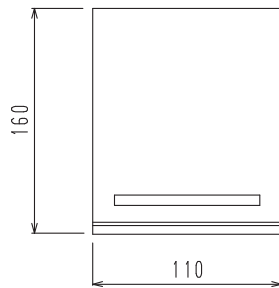
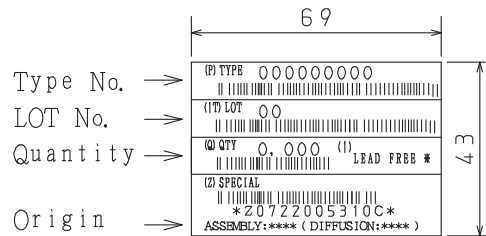


Bag Packing Specification

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

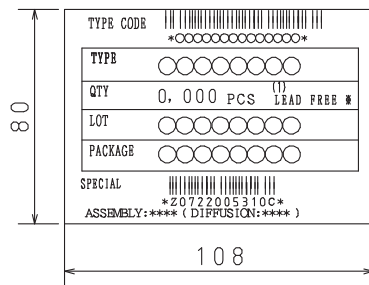
2. Bag dimensions
(unit:mm)3. Bag label, Inner box label
(unit:mm)4. Outer box label
(unit:mm)

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

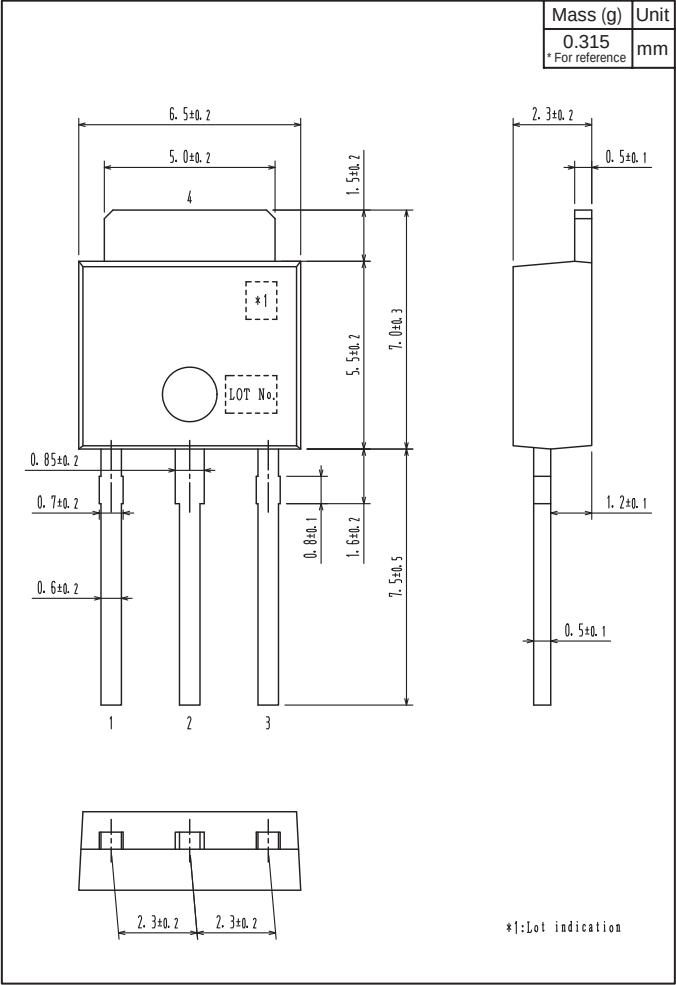
NOTE (1)

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



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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