Ordering number : ENA1897A

SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

N-Channel Silicon MOSFET

SFT1445 — General-Purpose Switching Device Applications

Features

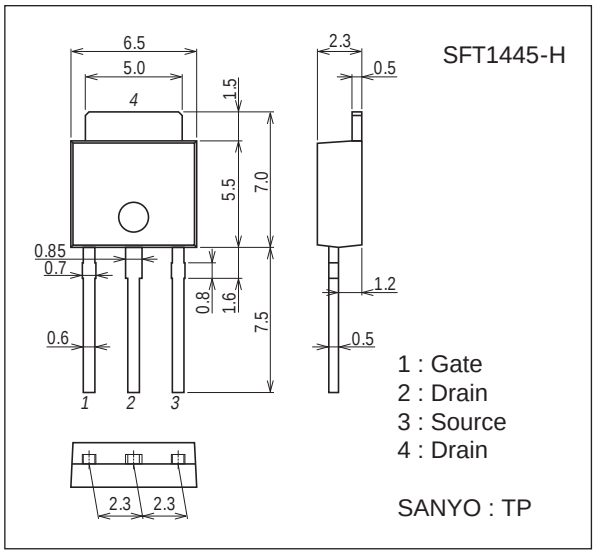
- ON-resistance $R_{DS}(on)1=85m\Omega$(typ.)
- Input Capacitance Ciss=1030pF(typ.)
- 4V drive
- Halogen free compliance
- Protection diode in

Specifications

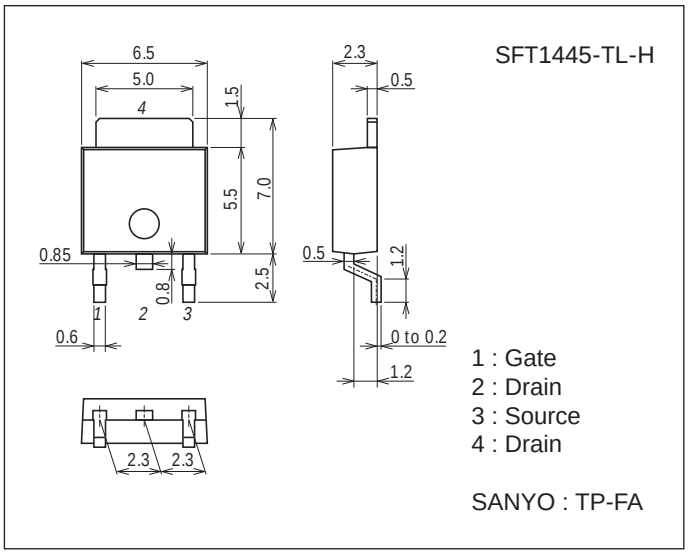
Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		100	V
Gate-to-Source Voltage	V_{GSS}		±20	V
Drain Current (DC)	I_D		17	A
Drain Current (PW≤10μs)	I_{DP}	PW≤10μs, duty cycle≤1%	68	A
Allowable Power Dissipation	P_D		1.0	W
		Tc=25°C	35	W
Channel Temperature	Tch		150	°C
Storage Temperature	Tstg		−55 to +150	°C

Package Dimensions unit : mm (typ)
7518-004



Package Dimensions unit : mm (typ)
7003-004

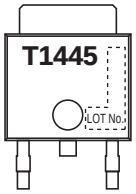


Product & Package Information

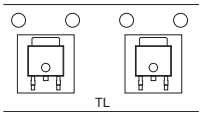
- Package : TP
- JEITA, JEDEC : SC-64, TO-251
- Minimum Packing Quantity : 500 pcs./bag

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

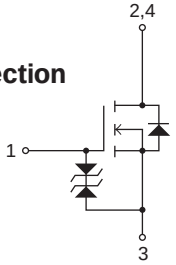
Marking (TP, TP-FA)



Packing Type (TP-FA) : TL



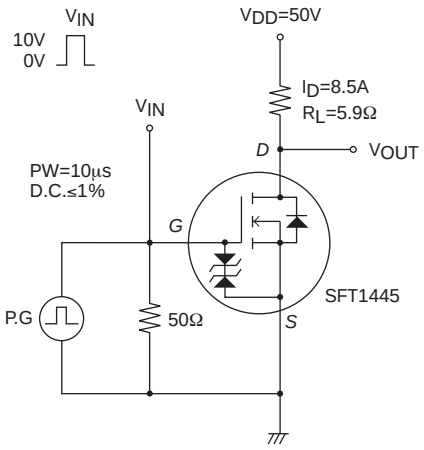
Electrical Connection



Electrical Characteristics at Ta=25°C

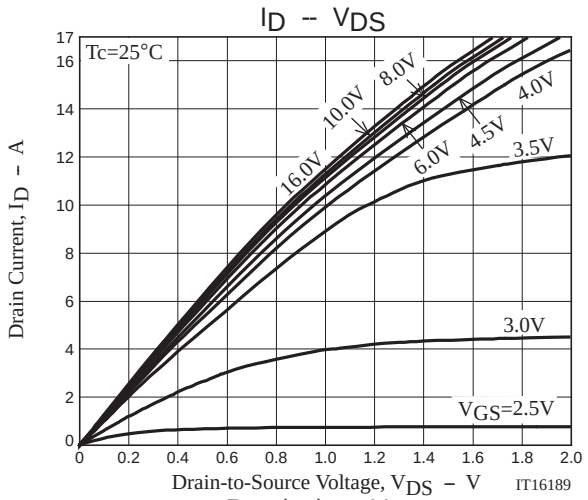
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	I_D=1mA, V_{GS}=0V	100			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=100V, V_{GS}=0V			1	μA
Gate-to-Source Leakage Current	I_{GSS}	V_{GS}=±16V, V_{DS}=0V			±10	μA
Cutoff Voltage	V_{GS}(off)	V_{DS}=10V, I_D=1mA	1.2		2.6	V
Forward Transfer Admittance	| yfs |	V_{DS}=10V, I_D=8.5A		8.9		S
Static Drain-to-Source On-State Resistance	R_{DS}(on)1	I_D=8.5A, V_{GS}=10V		85	111	mΩ
	R_{DS}(on)2	I_D=4A, V_{GS}=4.5V		90	126	mΩ
	R_{DS}(on)3	I_D=4A, V_{GS}=4V		93	130	mΩ
Input Capacitance	Ciss	V_{DS}=20V, f=1MHz		1030		pF
Output Capacitance	Coss			78		pF
Reverse Transfer Capacitance	Crss			42		pF
Turn-ON Delay Time	t_d(on)	See specified Test Circuit.		10		ns
Rise Time	t_r			35		ns
Turn-OFF Delay Time	t_d(off)			60		ns
Fall Time	t_f			60		ns
Total Gate Charge	Qg	V_{DS}=50V, V_{GS}=10V, I_D=17A		19		nC
Gate-to-Source Charge	Qgs			3.6		nC
Gate-to-Drain “Miller” Charge	Qgd			3.8		nC
Diode Forward Voltage	V_{SD}	I_S=17A, V_{GS}=0V		0.96	1.2	V

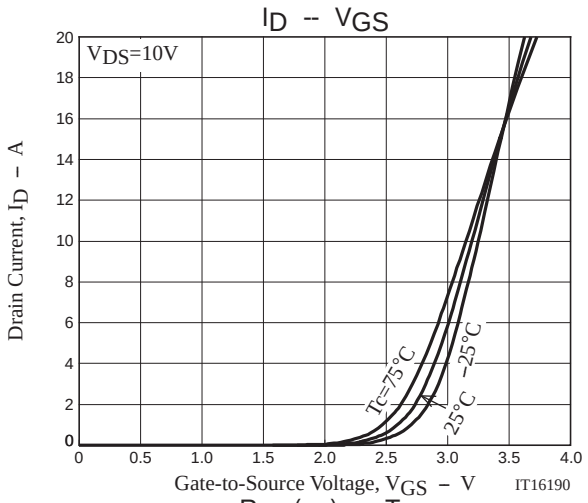
Switching Time Test Circuit

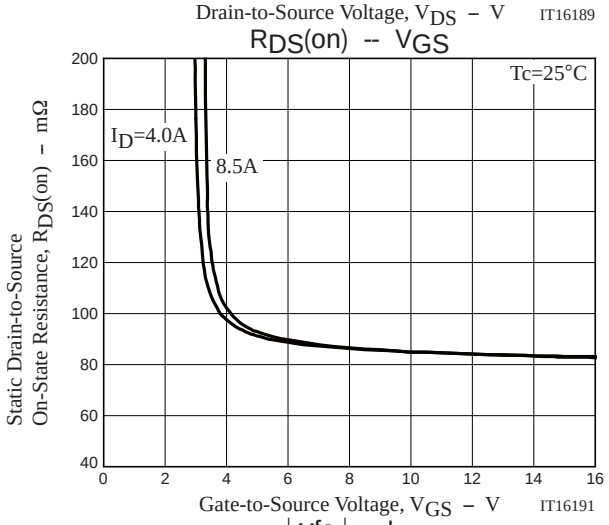


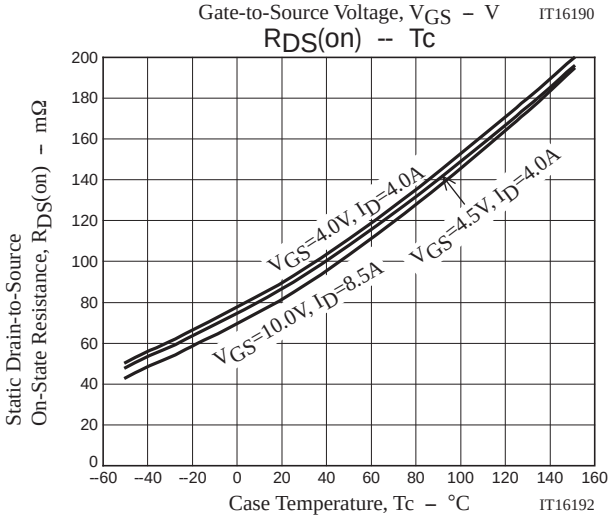
Ordering Information

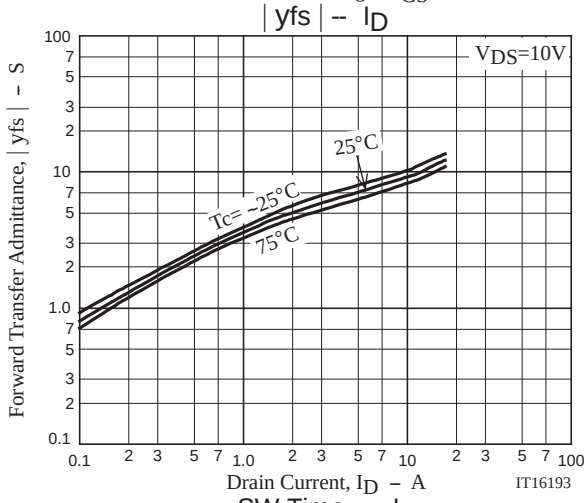
Device	Package	Shipping	memo
SFT1445-H	TP	500pcs./bag	Pb Free and Halogen Free
SFT1445-TL-H	TP-FA	700pcs./reel	

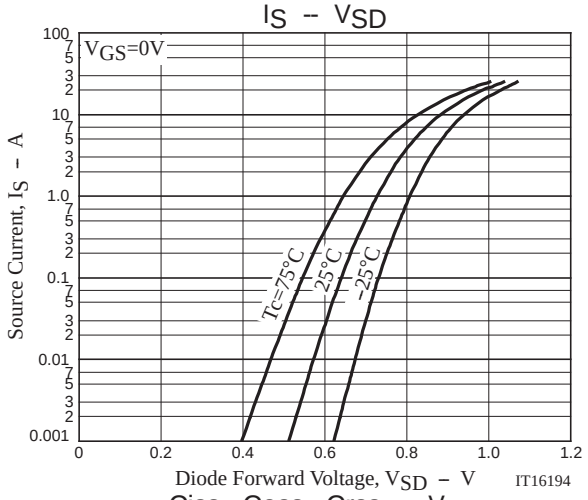

ID -- VDS
Tc=25°C
10.0V
8.0V
4.0V
16.0V
6.0V
4.5V
3.5V
3.0V
VGS=2.5V
Drain Current, ID – A
Drain-to-Source Voltage, VDS – V
IT16189

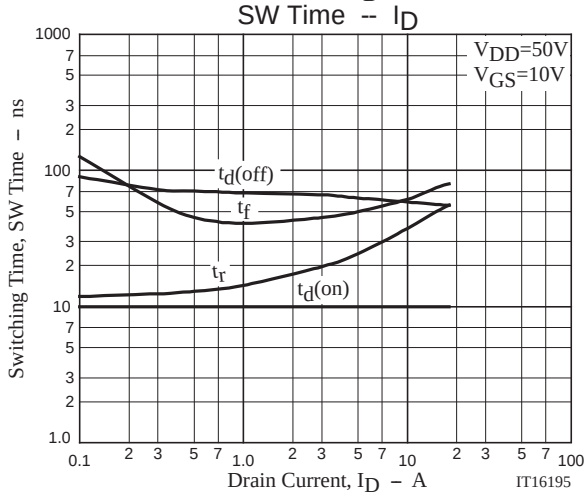

ID -- VGS
VDS=10V
Tc=75°C
25°C
–25°C
Drain Current, ID – A
Gate-to-Source Voltage, VGS – V
IT16190

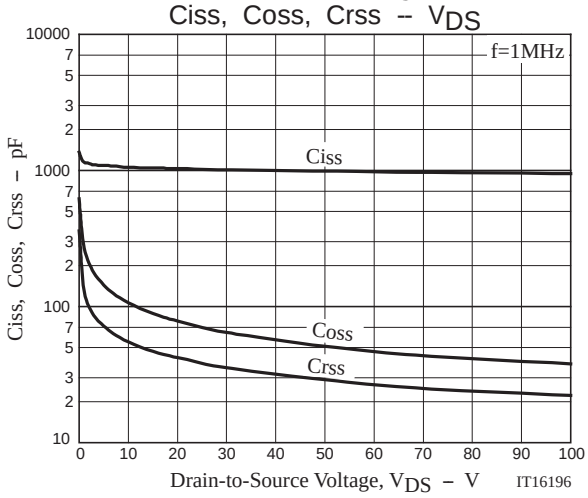

RDS(on) -- VGS
Tc=25°C
ID=4.0A
8.5A
Static Drain-to-Source On-State Resistance, RDS(on) – mΩ
Gate-to-Source Voltage, VGS – V
IT16191

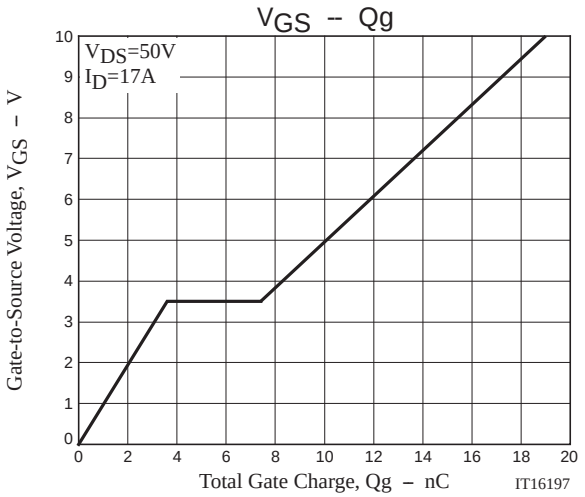

RDS(on) -- Tc
VGS=4.0V, ID=4.0A
VGS=4.5V, ID=4.0A
VGS=10.0V, ID=8.5A
Static Drain-to-Source On-State Resistance, RDS(on) – mΩ
Case Temperature, Tc – °C
IT16192

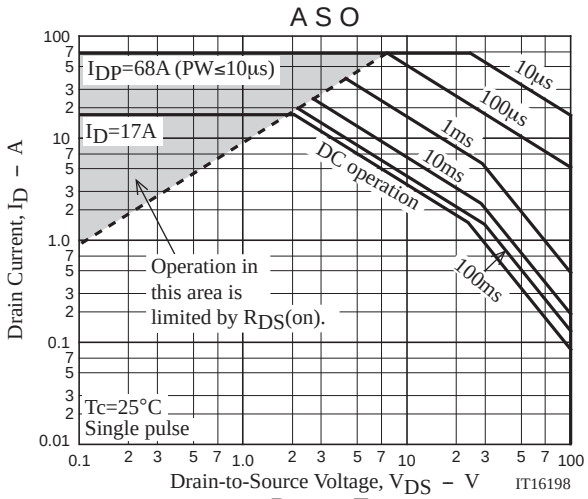

| yfs | -- ID
VDS=10V
25°C
Tc= –25°C
75°C
Forward Transfer Admittance, | yfs | – S
Drain Current, ID – A
IT16193

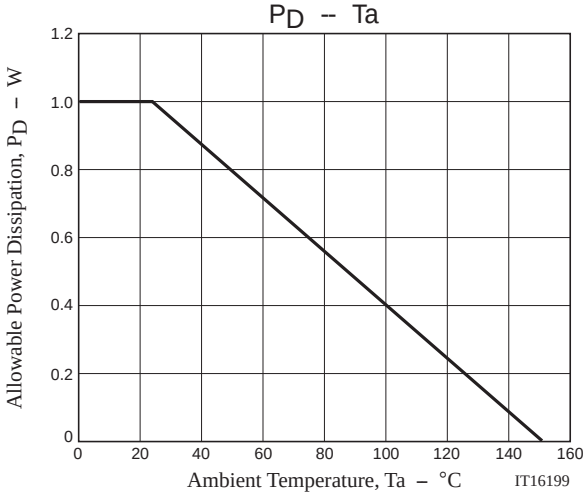

IS -- VSD
VGS=0V
Tc=75°C
25°C
–25°C
Source Current, IS – A
Diode Forward Voltage, VSD – V
IT16194

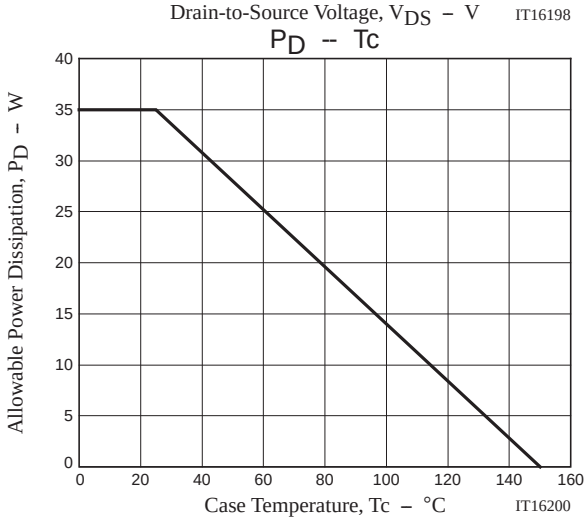

SW Time -- ID
VDD=50V
VGS=10V
td(off)
tf
tr
td(on)
Switching Time, SW Time – ns
Drain Current, ID – A
IT16195


Ciss, Coss, Crss -- VDS
f=1MHz
Ciss
Coss
Crss
Ciss, Coss, Crss – pF
Drain-to-Source Voltage, VDS – V
IT16196


VGS – Qg
VDS=50V
ID=17A
Gate-to-Source Voltage, VGS – V
Total Gate Charge, Qg – nC
IT16197


A S O
IDP=68A (PW≤10μs)
ID=17A
10μs
100μs
1ms
10ms
DC operation
100ms
Operation in this area is limited by RDS(on).
Tc=25°C
Single pulse
Drain Current, ID – A
Drain-to-Source Voltage, VDS – V
IT16198


PD -- Ta
Allowable Power Dissipation, PD – W
Ambient Temperature, Ta – °C
IT16199


PD -- Tc
Allowable Power Dissipation, PD – W
Case Temperature, Tc – °C
IT16200

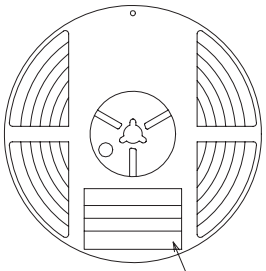
Taping Specification

SFT1445-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

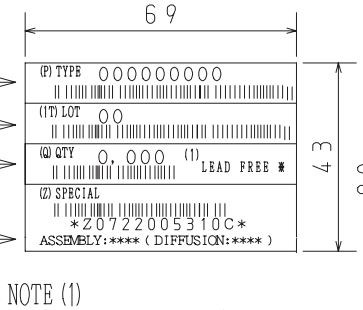
Packing method



Reel label

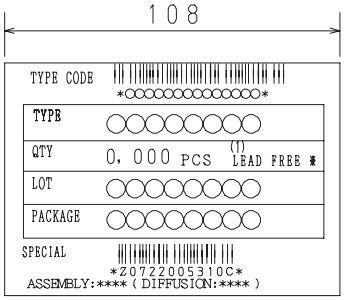
Reel label, Inner box label

(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.

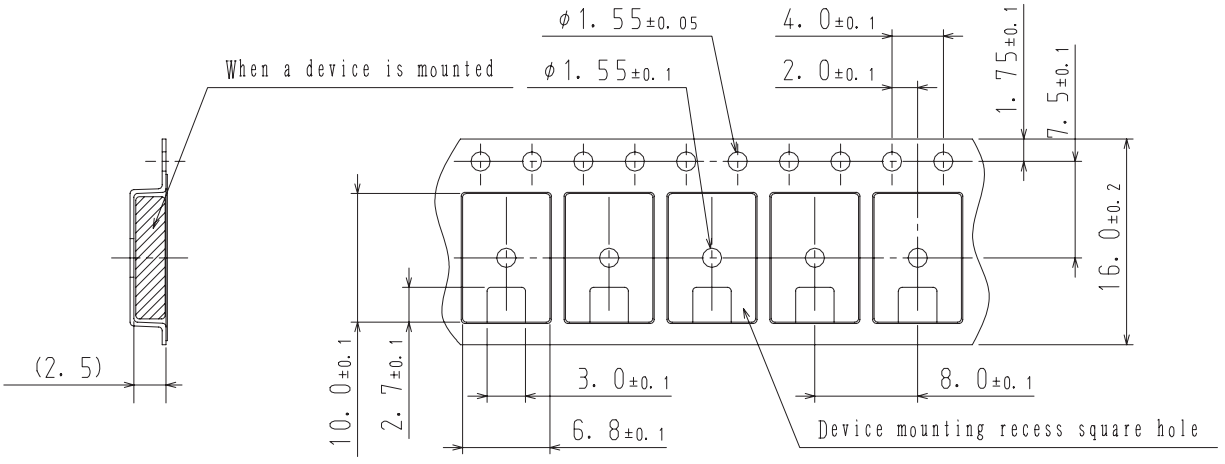


NOTE (1)
The LEAD FREE ※ description shows that the surface treatment of the terminal is lead free.

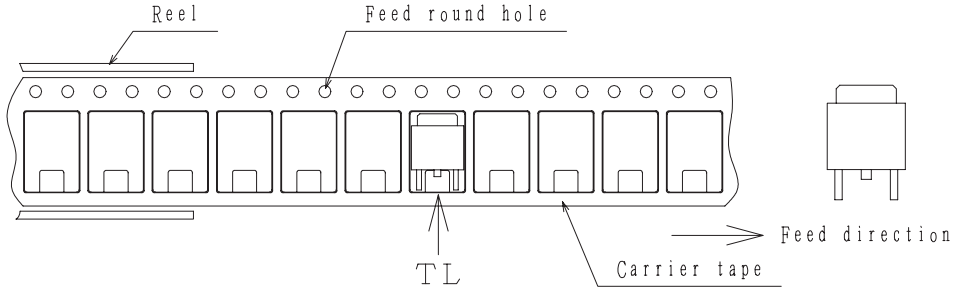
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

Taping configuration

1. Carrier tape size (unit:mm)



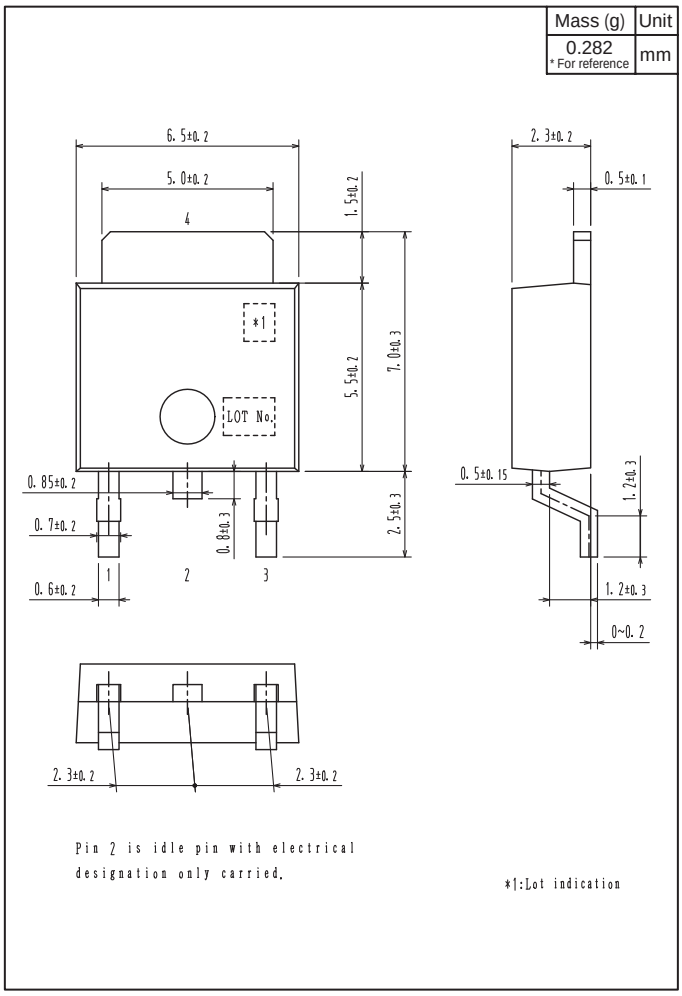
2. Device placement direction



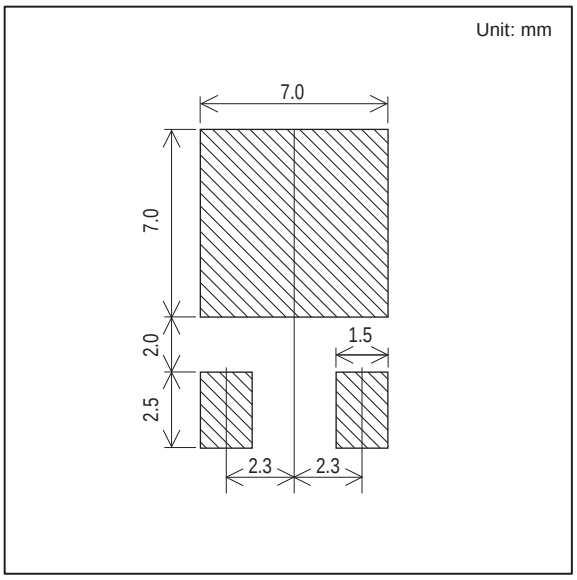
Those with one electrode terminal on the feed hole side……TL

Outline Drawing

SFT1445-TL-H



Land Pattern Example



Bag Packing Specification

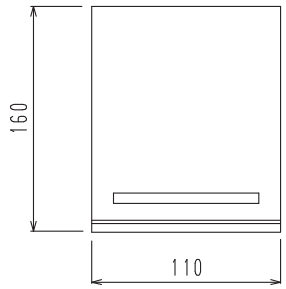
SFT1445-H

1. Packing Format

Package Name	Maximum Number of devices contained (pcs)			
	Bag	Inner box	Outer box	
TP		B-1	A-1	A-2
	500	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

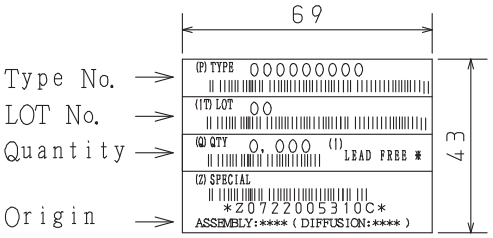
2. Bag dimensions

(unit: mm)



3. Bag label, Inner box label

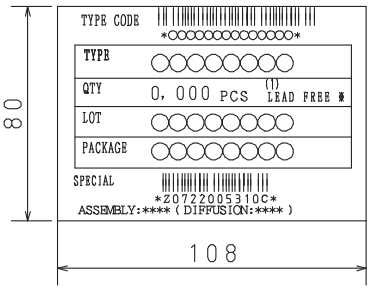
(unit: mm)



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.

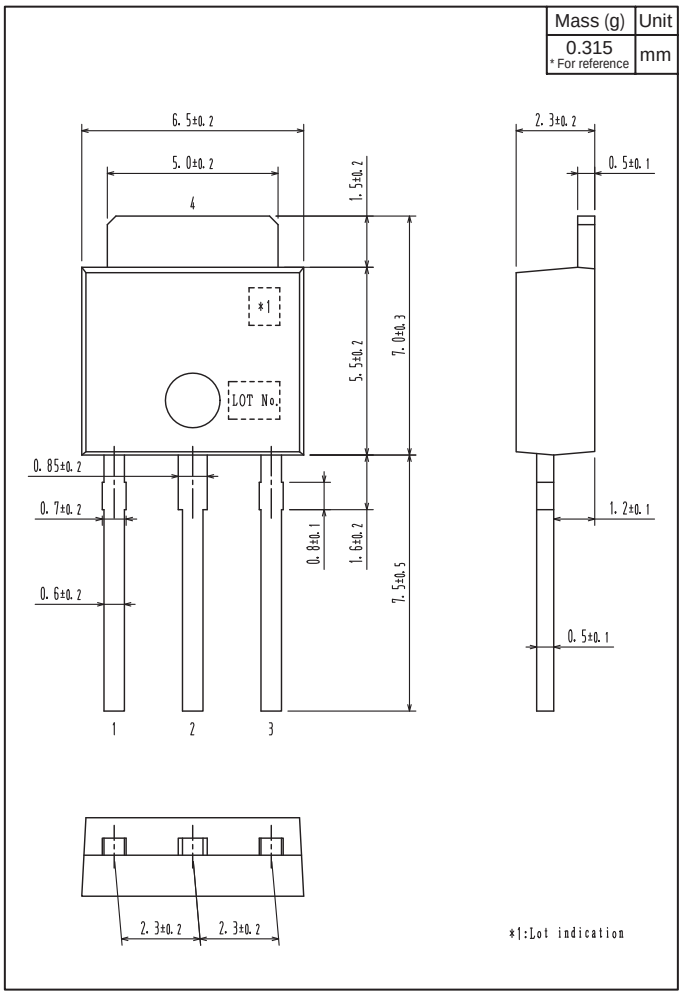


NOTE (1)
The LEAD FREE ※ description shows that the surface treatment of the terminal is lead free.

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

Outline Drawing

SFT1445-H



Note on usage : Since the SFT1445 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

This catalog provides information as of June, 2012. Specifications and information herein are subject to change without notice.