Ordering number : EN1509A

SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

N-Channel Silicon MOSFET

SFT1423 — General-Purpose Switching Device Applications

Features

- ON-resistance
- 4V drive
- Protection diode in

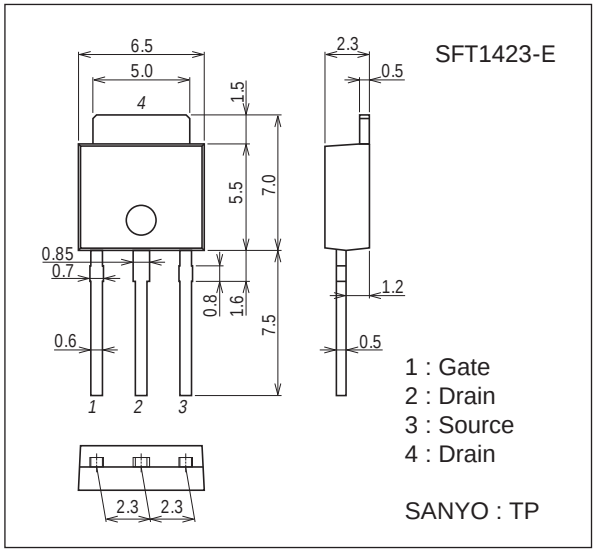
Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		500	V
Gate-to-Source Voltage	V_{GSS}		±20	V
Drain Current (DC)	I_D		2	A
Drain Current (PW≤10μs)	I_{DP}	PW≤10μs, duty cycle≤1%	10	A
Allowable Power Dissipation	P_D		1.0	W
		Tc=25°C	20	W
Channel Temperature	Tch		150	°C
Storage Temperature	Tstg		−55 to +150	°C

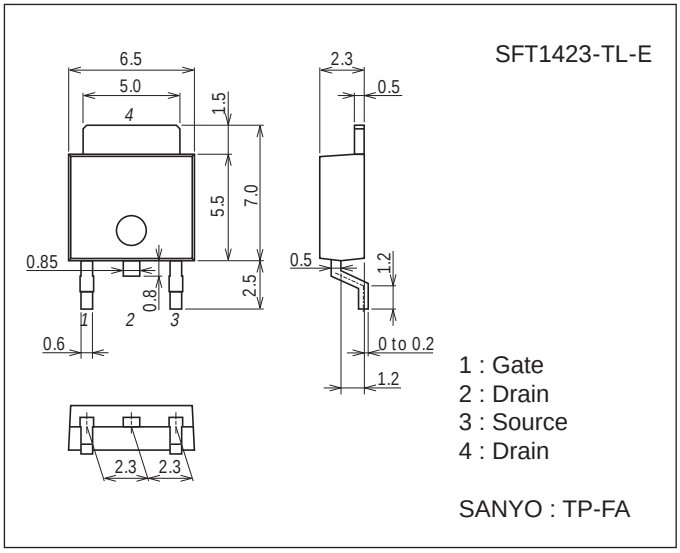
Package Dimensions unit : mm (typ)

7518-004



Package Dimensions unit : mm (typ)

7003-004

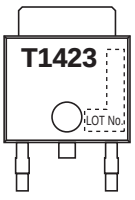


Product & Package Information

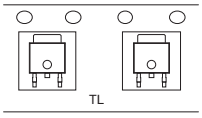
- Package : TP
- JEITA, JEDEC : SC-64, TO-251
- Minimum Packing Quantity : 500 pcs./bag

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

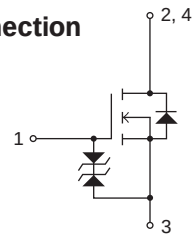
Marking (TP, TP-FA)



Packing Type (TP-FA) : TL



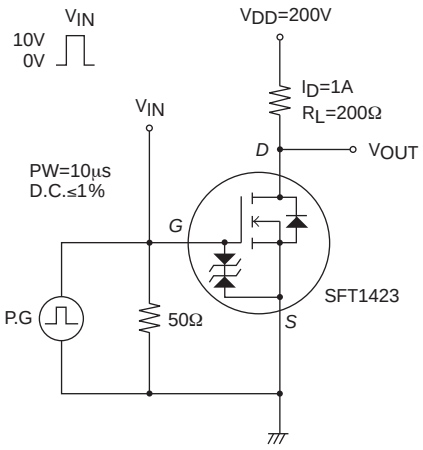
Electrical Connection



Electrical Characteristics at Ta=25°C

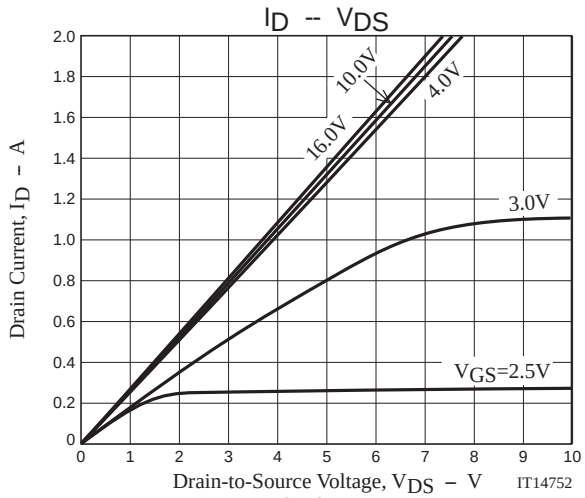
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	I_D=10mA, V_{GS}=0V	500			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=400V, V_{GS}=0V			100	μA
Gate-to-Source Leakage Current	I_{GSS}	V_{GS}=±16V, V_{DS}=0V			±10	μA
Cutoff Voltage	V_{GS}(off)	V_{DS}=10V, I_D=1mA	1.2		2.6	V
Forward Transfer Admittance	| yfs |	V_{DS}=10V, I_D=1A	1.1	1.9		S
Static Drain-to-Source On-State Resistance	R_{DS}(on)1	I_D=1A, V_{GS}=10V		3.8	4.9	Ω
	R_{DS}(on)2	I_D=0.5A, V_{GS}=4V		3.9	5	Ω
Input Capacitance	Ciss	V_{DS}=30V, f=1MHz		175		pF
Output Capacitance	Coss			32		pF
Reverse Transfer Capacitance	Crss			6		pF
Turn-ON Delay Time	t_d(on)	See specified Test Circuit.		7.4		ns
Rise Time	t_r			8.8		ns
Turn-OFF Delay Time	t_d(off)			42		ns
Fall Time	t_f			27		ns
Total Gate Charge	Qg	V_{DS}=200V, V_{GS}=10V, I_D=2A		8.7		nC
Gate-to-Source Charge	Qgs			1.1		nC
Gate-to-Drain “Miller” Charge	Qgd			2.9		nC
Diode Forward Voltage	V_{SD}	I_S=2A, V_{GS}=0V		0.9	1.2	V

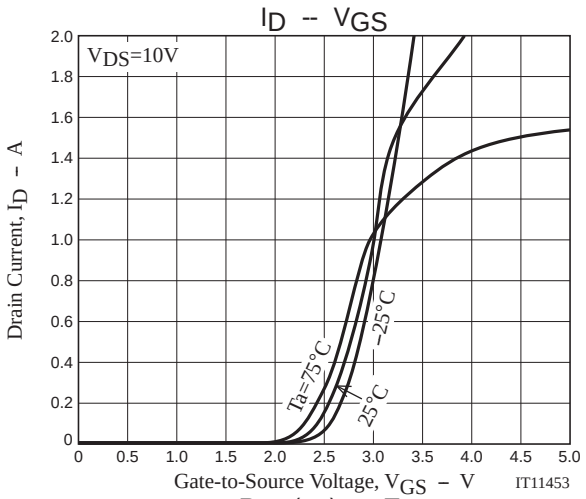
Switching Time Test Circuit

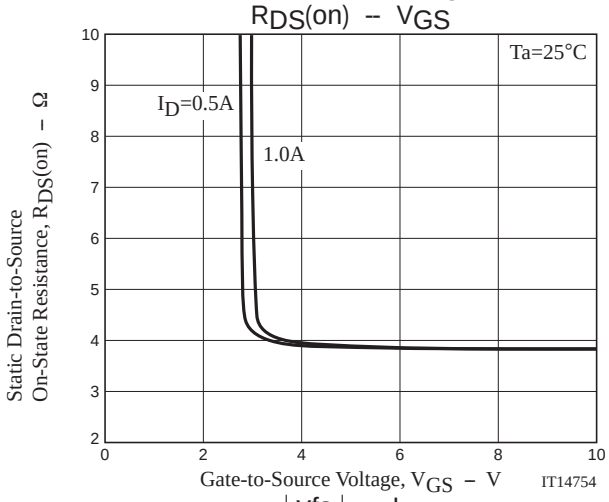


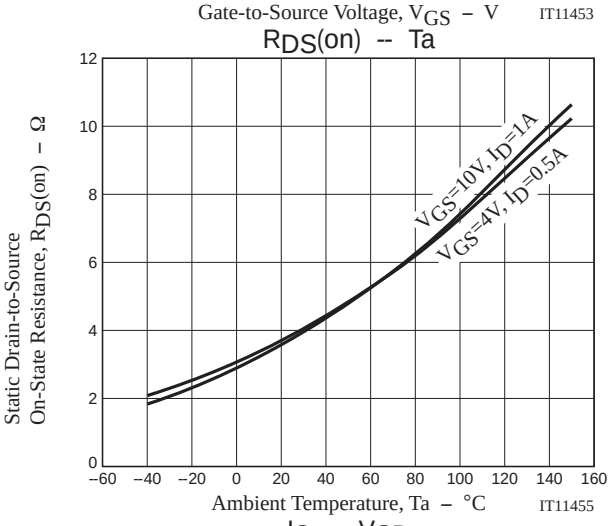
Ordering Information

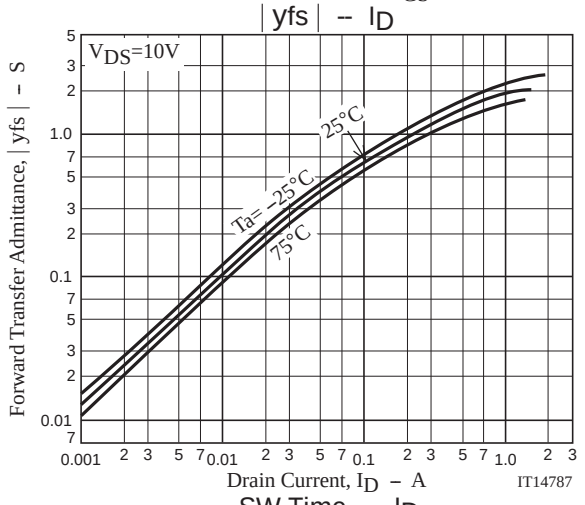
Device	Package	Shipping	memo
SFT1423-E	TP	500pcs./bag	Pb Free
SFT1423-TL-E	TP-FA	700pcs./reel	

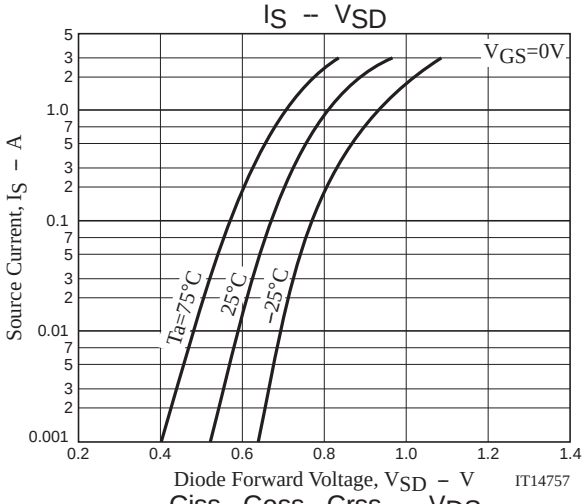

ID -- VDS
Drain Current, ID – A
Drain-to-Source Voltage, VDS – V
IT14752
10.0V
16.0V
4.0V
3.0V
VGS=2.5V

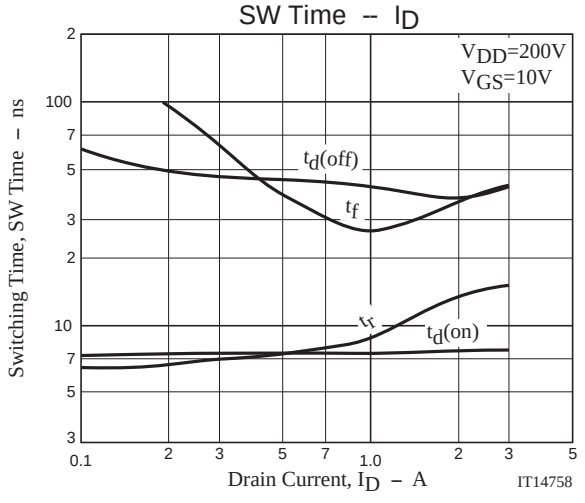

ID -- VGS
Drain Current, ID – A
Gate-to-Source Voltage, VGS – V
IT11453
VDS=10V
Ta=75°C
25°C
–25°C

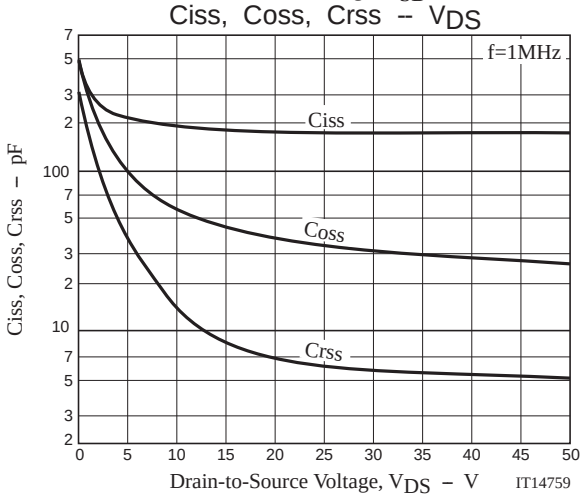

RDS(on) -- VGS
Static Drain-to-Source On-State Resistance, RDS(on) – Ω
Gate-to-Source Voltage, VGS – V
IT14754
Ta=25°C
ID=0.5A
1.0A

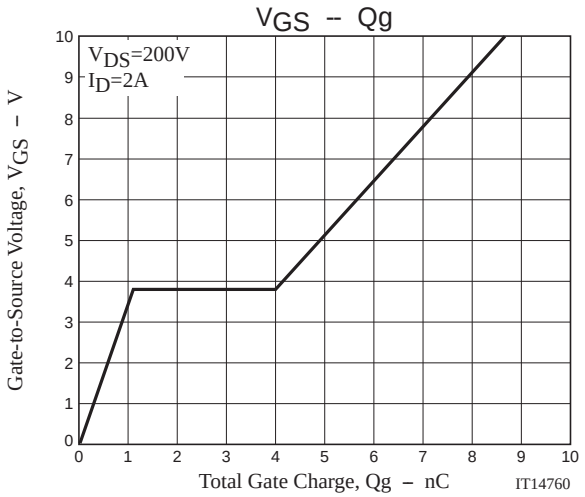

RDS(on) -- Ta
Static Drain-to-Source On-State Resistance, RDS(on) – Ω
Ambient Temperature, Ta – °C
IT11455
VGS=10V, ID=1A
VGS=4V, ID=0.5A

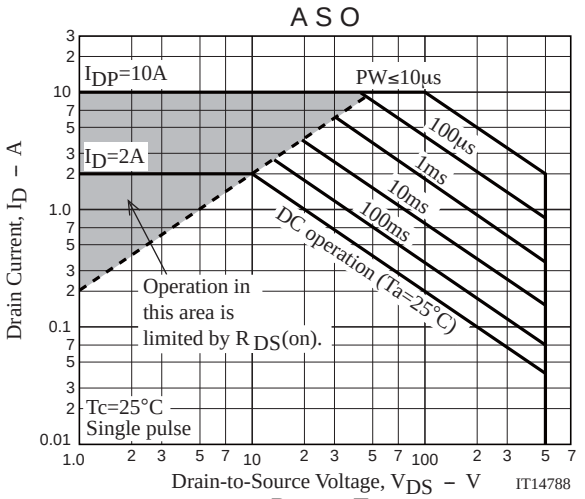

| yfs | -- ID
Forward Transfer Admittance, | yfs | – S
Drain Current, ID – A
IT14787
VDS=10V
25°C
Ta=–25°C
75°C

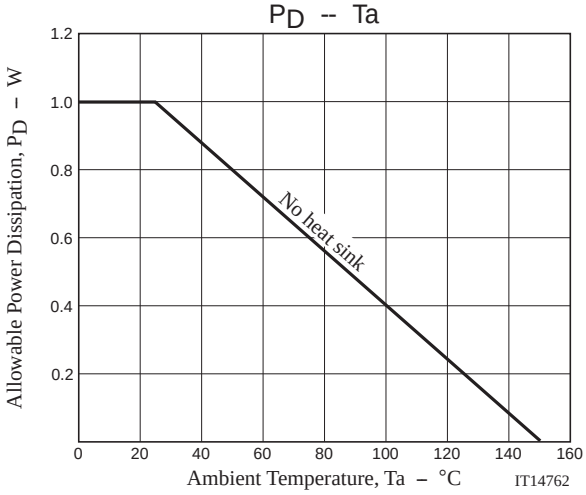

IS -- VSD
Source Current, IS – A
Diode Forward Voltage, VSD – V
IT14757
VGS=0V
Ta=75°C
25°C
–25°C

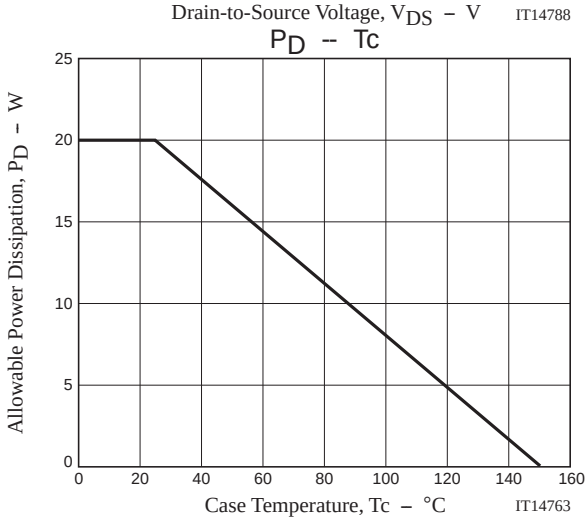

SW Time -- ID
Switching Time, SW Time – ns
Drain Current, ID – A
IT14758
VDD=200V
VGS=10V
td(off)
tf
tr
td(on)


Ciss, Coss, Crss -- VDS
Ciss, Coss, Crss – pF
Drain-to-Source Voltage, VDS – V
IT14759
f=1MHz
Ciss
Coss
Crss


VGS – Qg
VDS=200V
ID=2A
Gate-to-Source Voltage, VGS – V
Total Gate Charge, Qg – nC
IT14760


A S O
IDP=10A
ID=2A
PW≤10μs
100μs
1ms
10ms
100ms
DC operation (Ta=25°C)
Operation in this area is limited by RDS(on).
Tc=25°C
Single pulse
Drain Current, ID – A
Drain-to-Source Voltage, VDS – V
IT14788


PD -- Ta
No heat sink
Allowable Power Dissipation, PD – W
Ambient Temperature, Ta – °C
IT14762


PD -- Tc
Allowable Power Dissipation, PD – W
Case Temperature, Tc – °C
IT14763

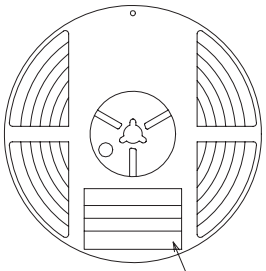
Taping Specification

SFT1423-TL-E

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

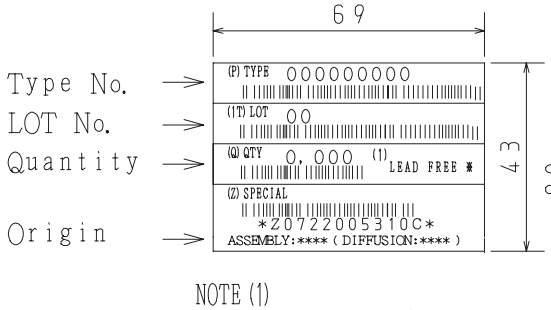
Packing method



Reel label

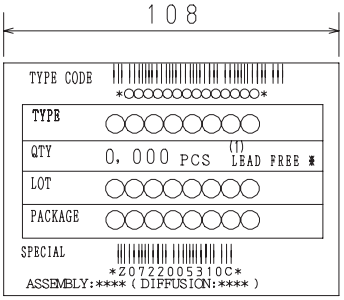
Reel label, Inner box label

(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.

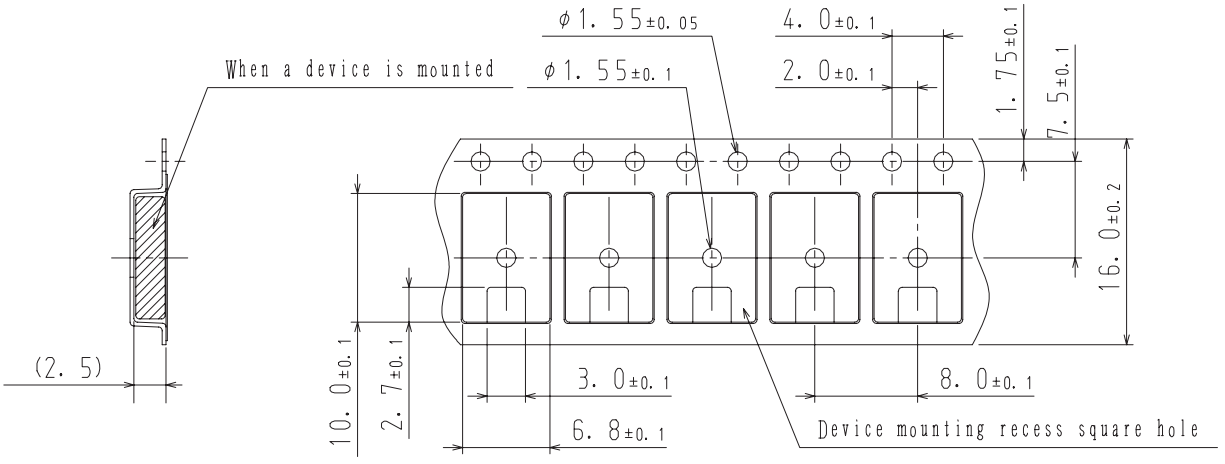


NOTE (1)
The LEAD FREE ※ description shows that the surface treatment of the terminal is lead free.

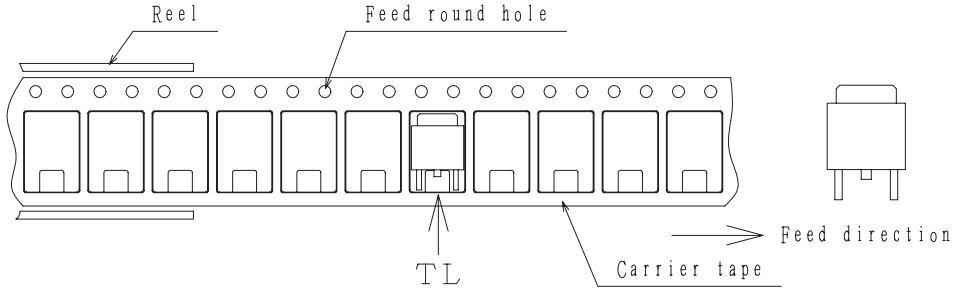
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

Taping configuration

1. Carrier tape size (unit:mm)



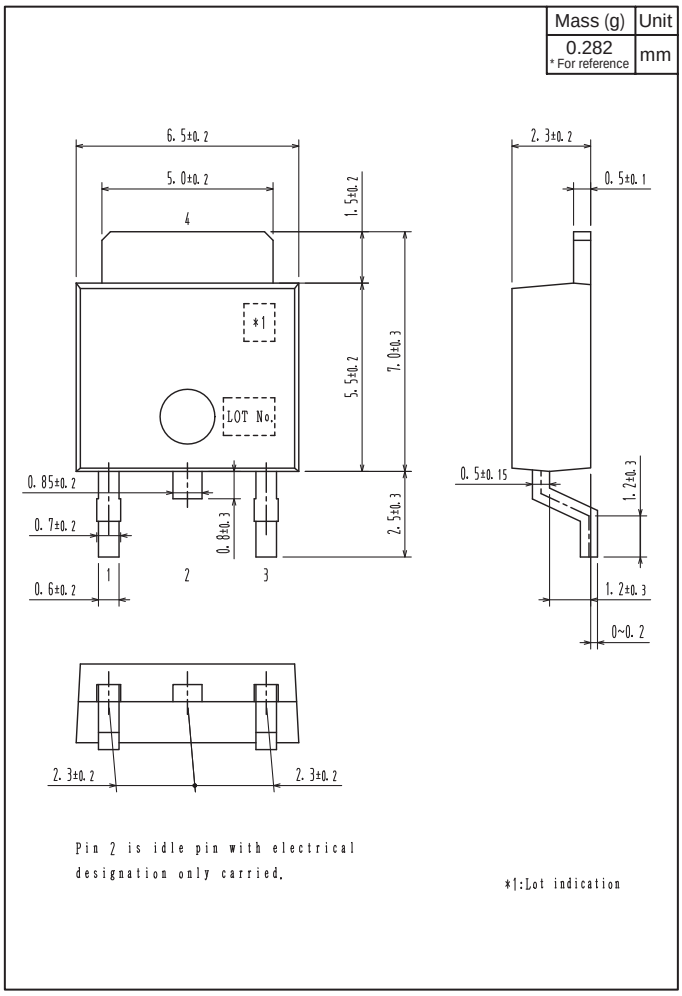
2. Device placement direction



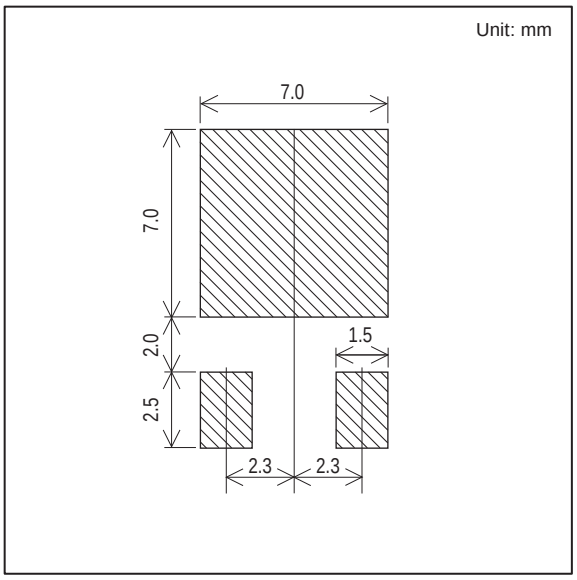
Those with one electrode terminal on the feed hole side……TL

Outline Drawing

SFT1423-TL-E



Land Pattern Example



Bag Packing Specification

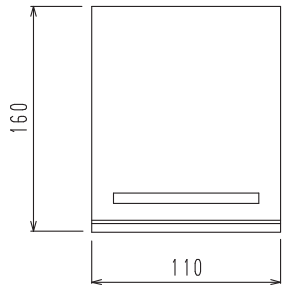
SFT1423-E

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

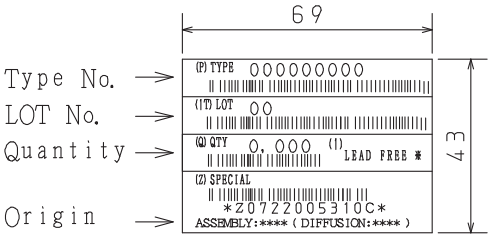
2. Bag dimensions

(unit: mm)



3. Bag label, Inner box label

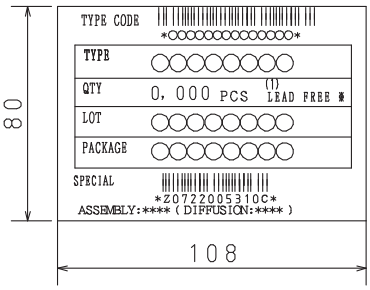
(unit: mm)



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.

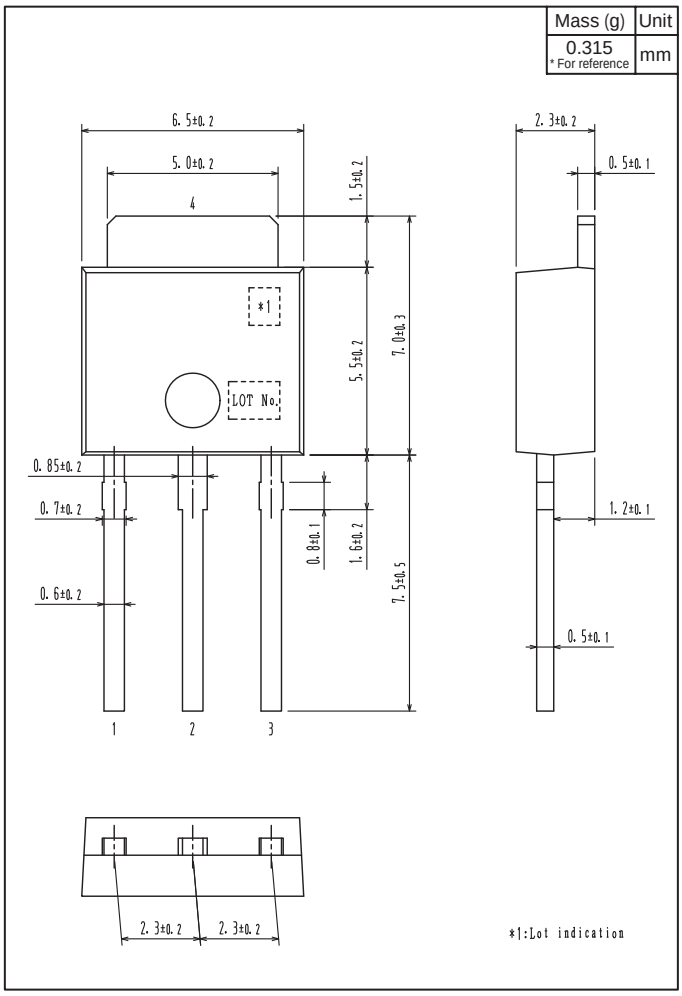


NOTE (1)
The LEAD FREE ※ description shows that the surface treatment of the terminal is lead free.

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

Outline Drawing

SFT1423-E



Note on usage : Since the SFT1423 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.