Ordering number : ENA1816A

SFT1440

N-Channel Power MOSFET
600V, 1.5A, 8.1Ω, Single TP/TP-FA

ON Semiconductor®
http://onsemi.com

Features

- ON-resistance $R_{DS}(on)$=6.2Ω(typ.)
- Protection diode in

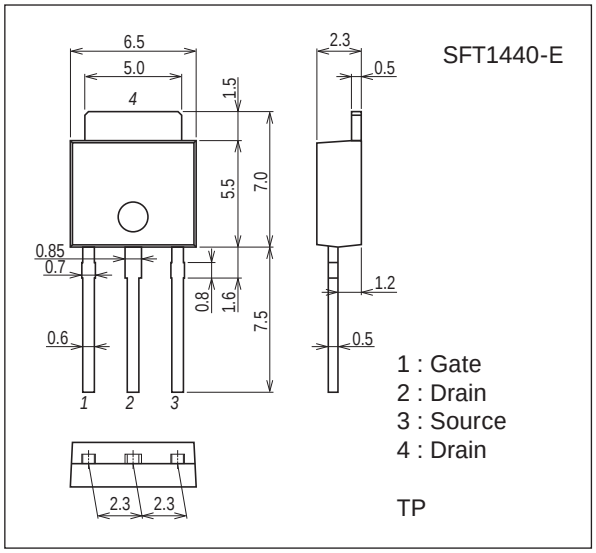
Specifications

Absolute Maximum Ratings at Ta=25°C

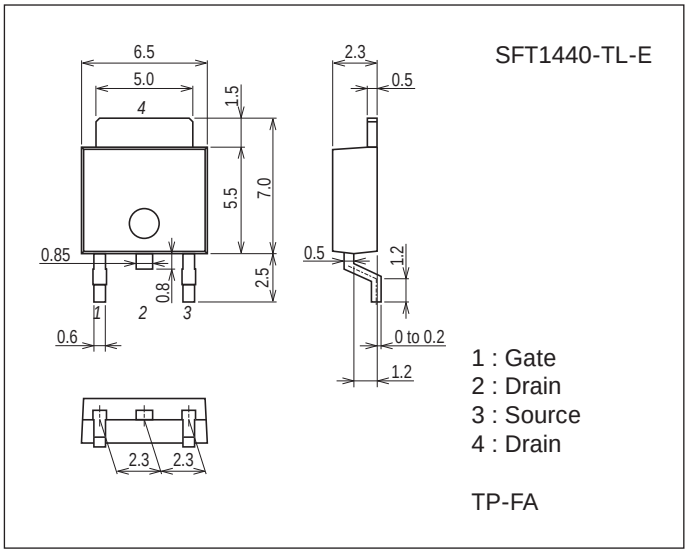
Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		600	V
Gate-to-Source Voltage	V_{GSS}		±30	V
Drain Current (DC)	I_D		1.5	A
Drain Current (PW≤10μs)	I_{DP}	PW≤10μs, duty cycle≤1%	6.0	A
Allowable Power Dissipation	P_D		1.0	W
		Tc=25°C	20	W
Channel Temperature	Tch		150	°C
Storage Temperature	Tstg		−55 to +150	°C

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

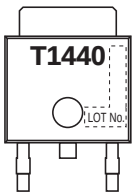


Product & Package Information

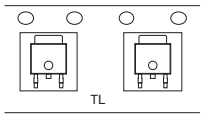
- Package : TP
- JEITA, JEDEC : SC-64, TO-251
- Minimum Packing Quantity : 500 pcs./bag

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

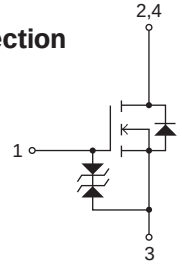
Marking (TP, TP-FA)



Packing Type (TP-FA) : TL



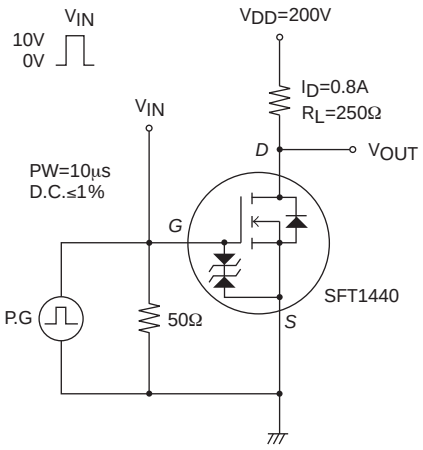
Electrical Connection (TP, TP-FA)



Electrical Characteristics at Ta=25°C

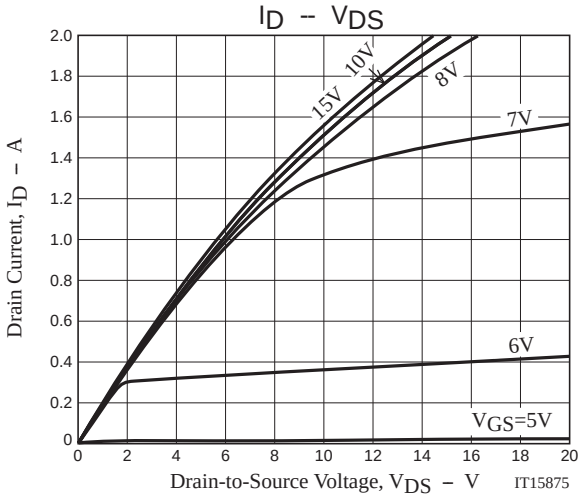
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	I_D=10mA, V_{GS}=0V	600			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=480V, V_{GS}=0V			100	μA
Gate-to-Source Leakage Current	I_{GSS}	V_{GS}=±24V, V_{DS}=0V			±10	μA
Cutoff Voltage	V_{GS}(off)	V_{DS}=10V, I_D=1mA	3.0		5.0	V
Forward Transfer Admittance	| yfs |	V_{DS}=10V, I_D=0.8A		1.0		S
Static Drain-to-Source On-State Resistance	R_{DS}(on)1	I_D=0.8A, V_{GS}=10V		6.2	8.1	Ω
Input Capacitance	Ciss	V_{DS}=30V, f=1MHz		130		pF
Output Capacitance	Coss			25		pF
Reverse Transfer Capacitance	Crss			4.0		pF
Turn-ON Delay Time	t_d(on)	See specified Test Circuit.		9.1		ns
Rise Time	t_r			15		ns
Turn-OFF Delay Time	t_d(off)			18		ns
Fall Time	t_f			19		ns
Total Gate Charge	Qg	V_{DS}=300V, V_{GS}=10V, I_D=1.5A		6.3		nC
Gate-to-Source Charge	Qgs			1.4		nC
Gate-to-Drain “Miller” Charge	Qgd			3.6		nC
Diode Forward Voltage	V_{SD}	I_S=1.5A, V_{GS}=0V		0.85	1.2	V

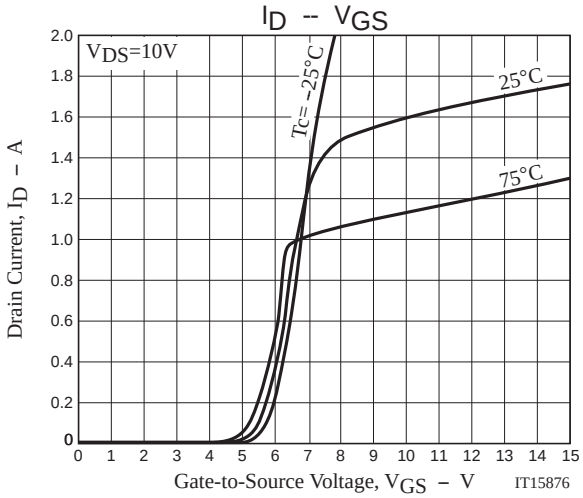
Switching Time Test Circuit

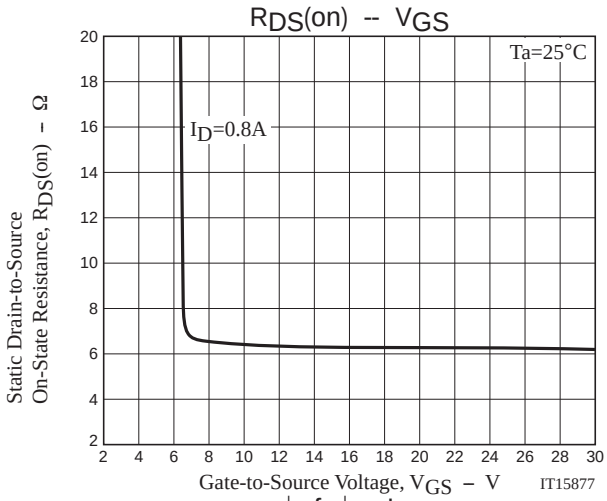


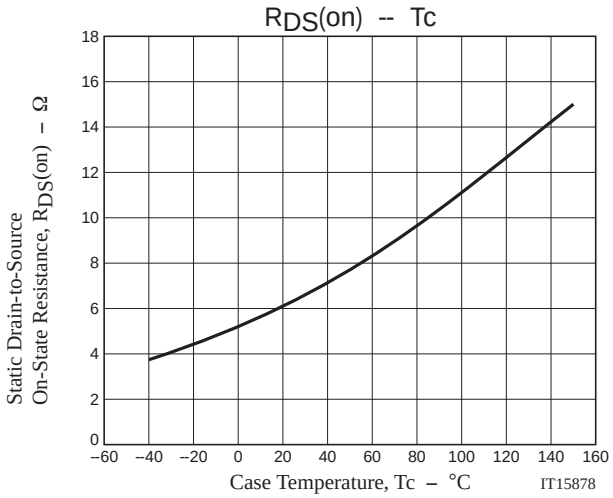
Ordering Information

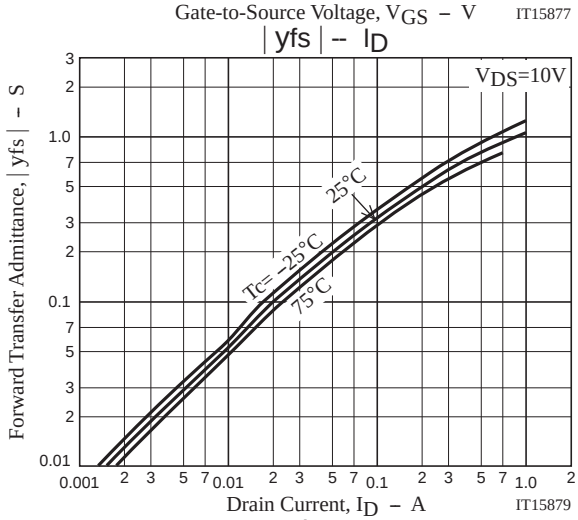
Device	Package	Shipping	memo
SFT1440-E	TP	500pcs./bag	Pb Free
SFT1440-TL-E	TP-FA	700pcs./reel	

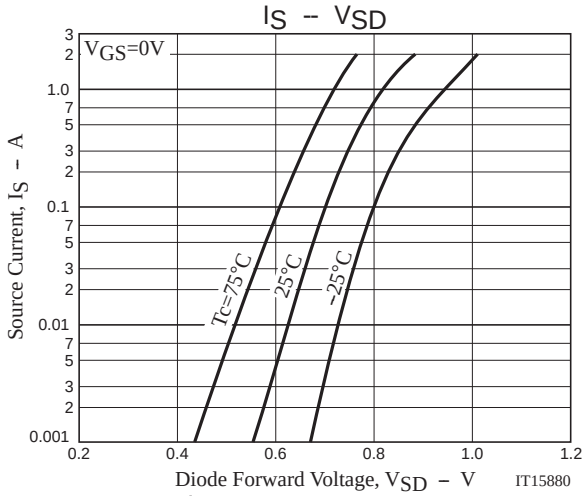


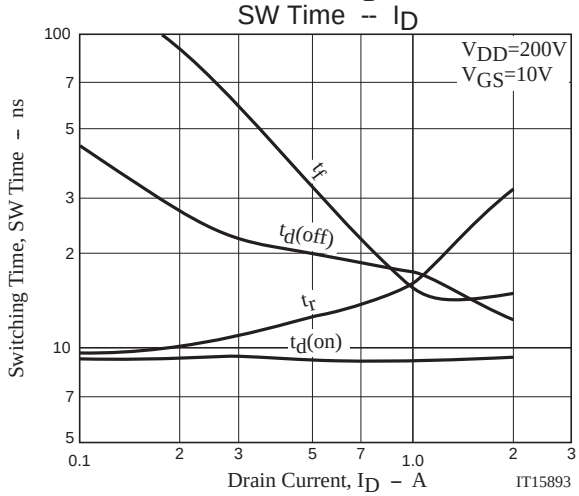


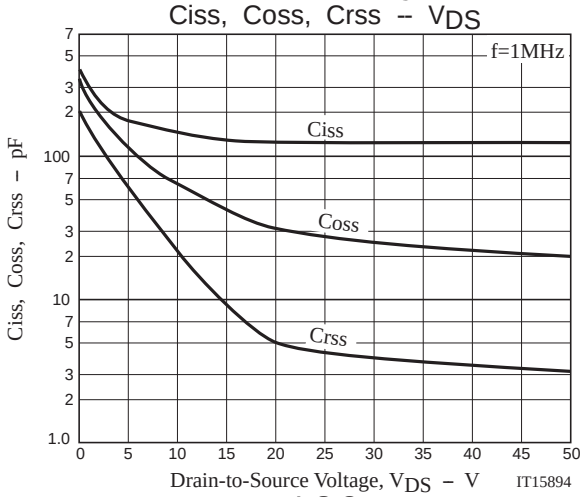

RDS(on) -- VGS
Ta=25°C
ID=0.8A
Static Drain-to-Source On-State Resistance, RDS(on) – Ω
Gate-to-Source Voltage, VGS – V
IT15877

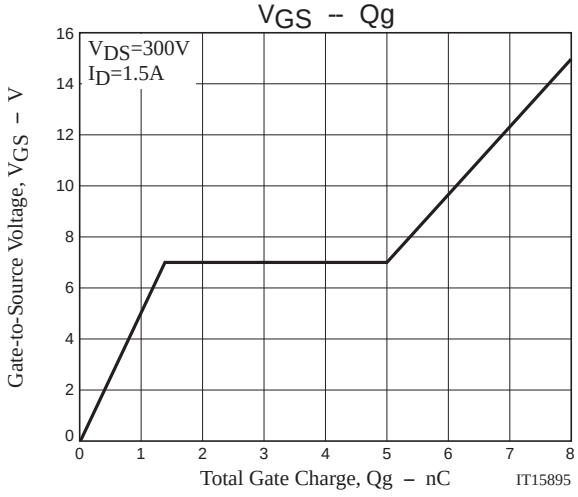

RDS(on) -- Tc
Static Drain-to-Source On-State Resistance, RDS(on) – Ω
Case Temperature, Tc – °C
IT15878

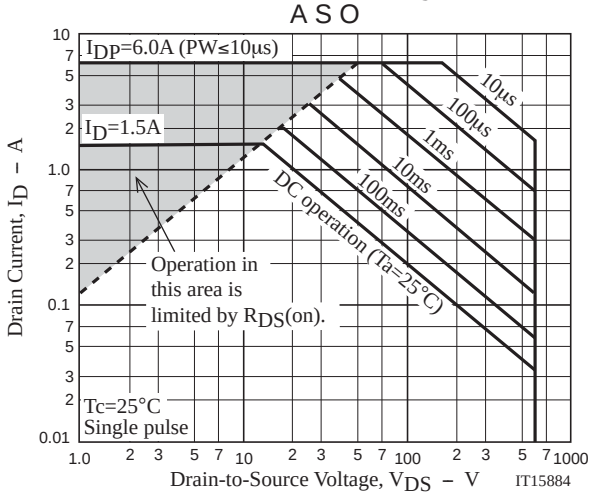

| yfs | -- ID
VDS=10V
25°C
Tc= –25°C
75°C
Forward Transfer Admittance, | yfs | – S
Drain Current, ID – A
IT15879

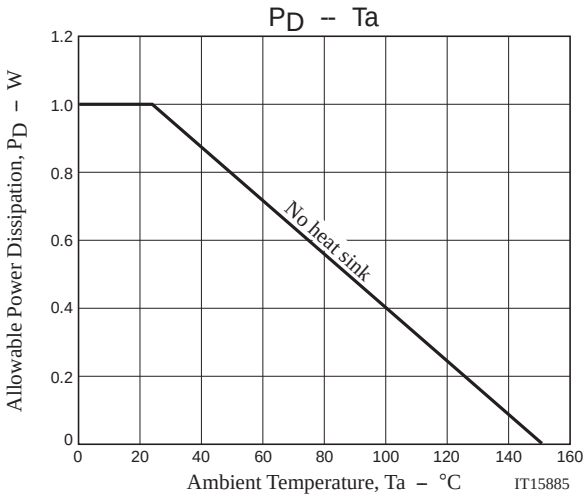

IS -- VSD
VGS=0V
Tc=75°C
25°C
–25°C
Source Current, IS – A
Diode Forward Voltage, VSD – V
IT15880

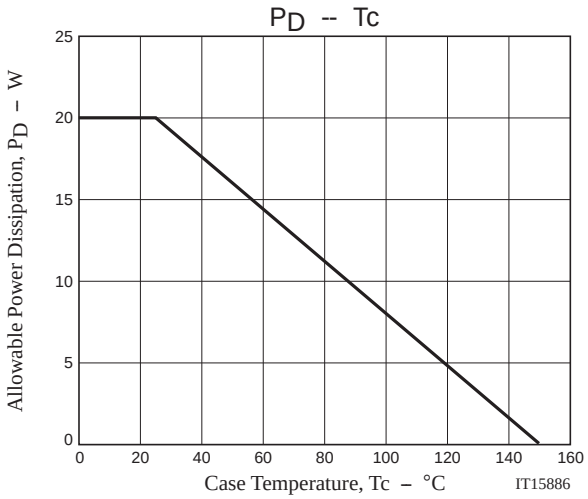

SW Time -- ID
VDD=200V
VGS=10V
tf
td(off)
tr
td(on)
Switching Time, SW Time – ns
Drain Current, ID – A
IT15893


Ciss, Coss, Crss -- VDS
f=1MHz
Ciss
Coss
Crss
Ciss, Coss, Crss – pF
Drain-to-Source Voltage, VDS – V
IT15894


VGS -- Qg
VDS=300V
ID=1.5A
Gate-to-Source Voltage, VGS – V
Total Gate Charge, Qg – nC
IT15895


ASO
IDP=6.0A (PW≤10μs)
ID=1.5A
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
IT15884


PD -- Ta
Allowable Power Dissipation, PD – W
1.2
1.0
0.8
0.6
0.4
0.2
0
No heat sink
0
20
40
60
80
100
120
140
160
Ambient Temperature, Ta – °C
IT15885


PD -- Tc
Allowable Power Dissipation, PD – W
25
20
15
10
5
0
0
20
40
60
80
100
120
140
160
Case Temperature, Tc – °C
IT15886

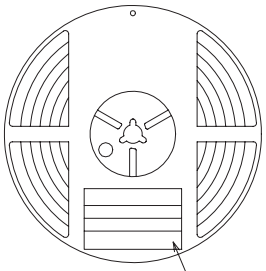
Taping Specification

SFT1440-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

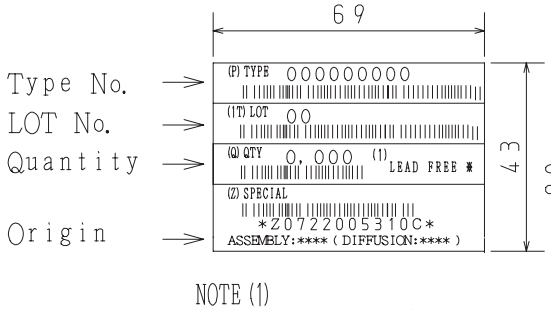
Packing method



Reel label

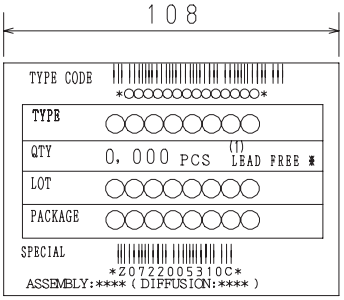
Reel label, Inner box label

(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.

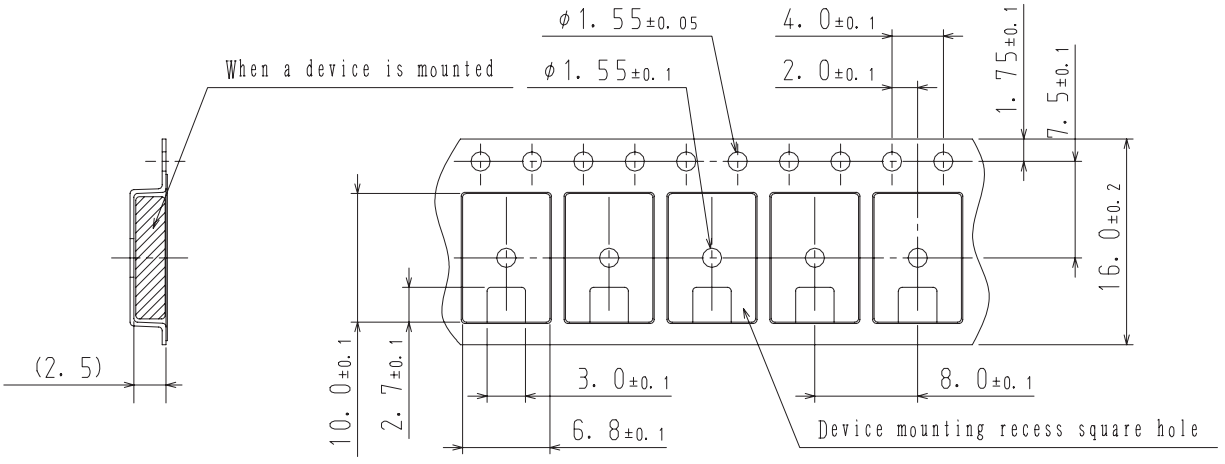


NOTE (1)
The LEAD FREE ※ description shows that the surface treatment of the terminal is lead free.

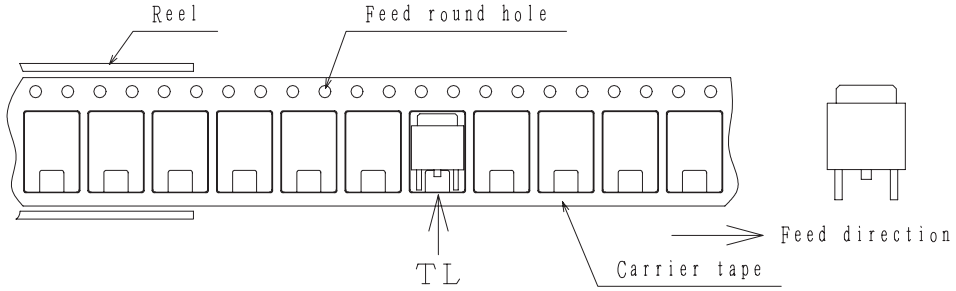
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

Taping configuration

1. Carrier tape size (unit:mm)



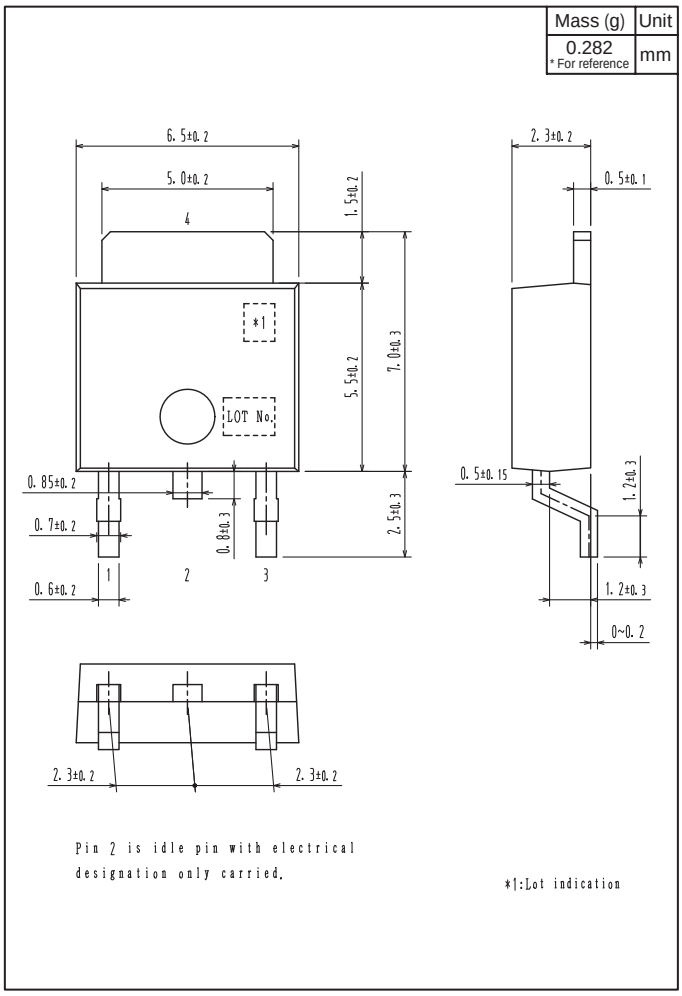
2. Device placement direction



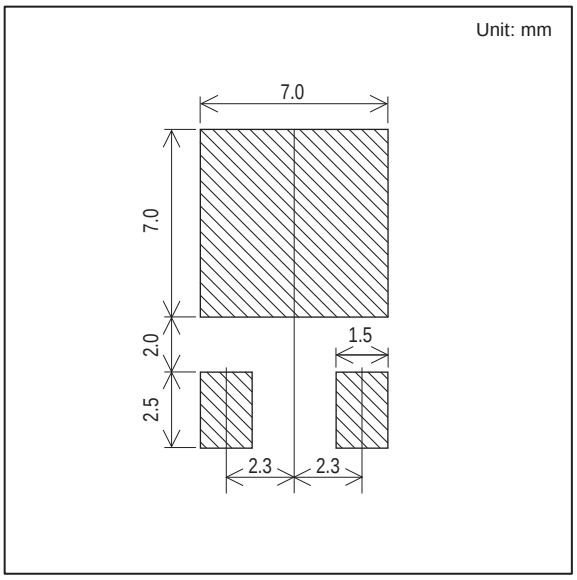
Those with one electrode terminal on the feed hole side……TL

Outline Drawing

SFT1440-TL-E



Land Pattern Example



Bag Packing Specification

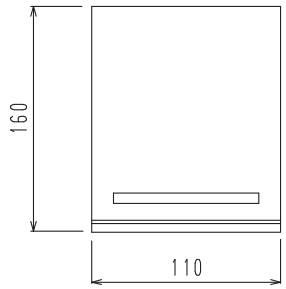
SFT1440-E

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

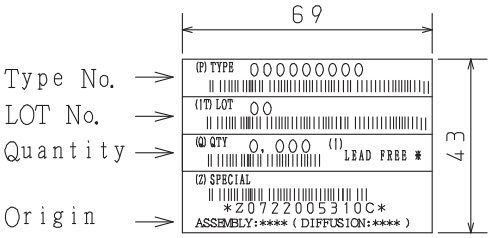
2. Bag dimensions

(unit: mm)



3. Bag label, Inner box label

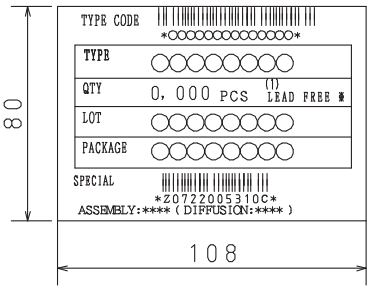
(unit: mm)



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.

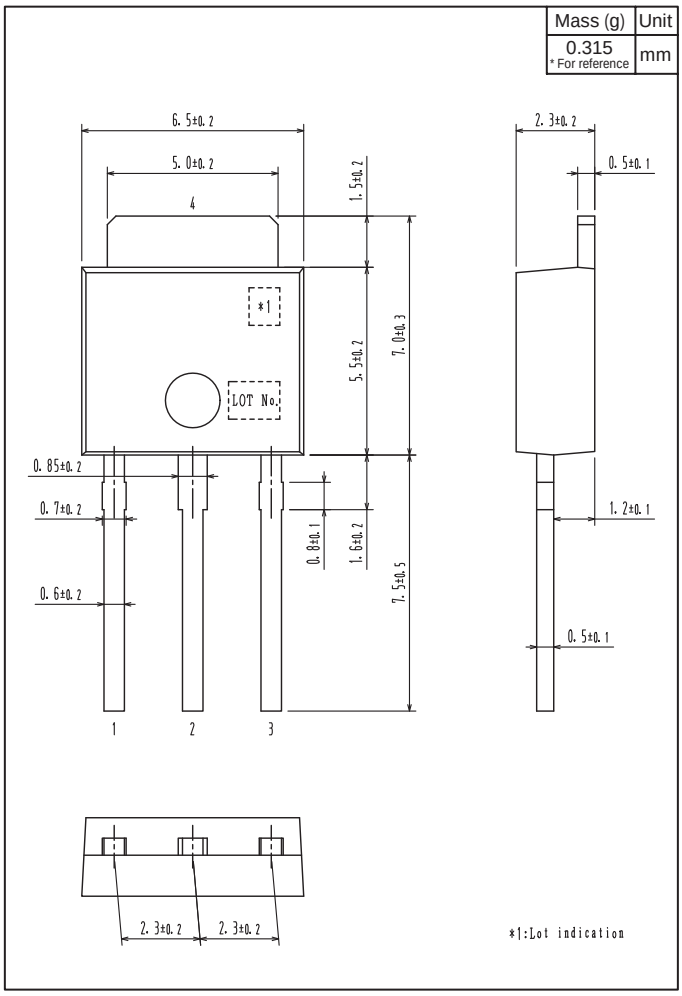


NOTE (1)
The LEAD FREE ※ description shows that the surface treatment of the terminal is lead free.

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

Outline Drawing

SFT1440-E



Note on usage : Since the SFT1440 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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