



CPH5871

MOSFET : N-Channel Silicon MOSFET

SBD : Schottky Barrier Diode

General-Purpose Switching Device Applications

Features

- Composite type with a N-channel silicon MOSFET and a schottky barrier diode contained in one package facilitating high-density mounting
- Halogen free compliance
- [MOSFET] • Ultrahigh-speed switching
- [SBD] • Short reverse recovery time
- Protection diode in
- 1.8V drive
- Low forward voltage

Specifications

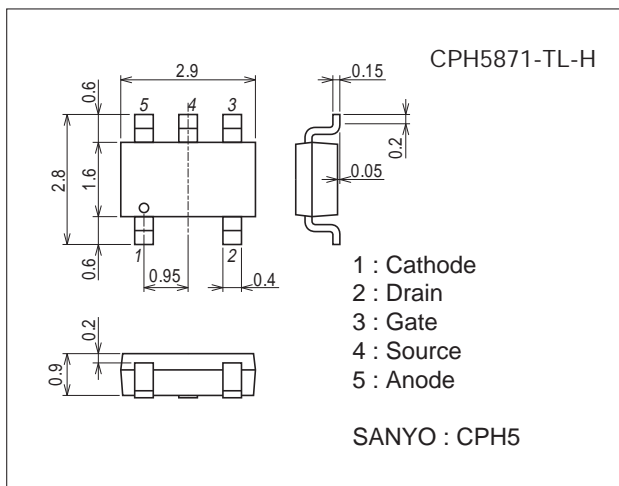
Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
[MOSFET]				
Drain-to-Source Voltage	V _{DSS}		30	V
Gate-to-Source Voltage	V _{GSS}		±12	V
Drain Current (DC)	I _D		3.5	A
Drain Current (Pulse)	I _{DP}	PW≤10μs, duty cycle≤1%	14	A
Allowable Power Dissipation	P _D	When mounted on ceramic substrate (600mm ² ×0.8mm) 1unit	0.9	W
Channel Temperature	T _{ch}		150	°C
Storage Temperature	T _{stg}		-55 to +125	°C
[SBD]				
Repetitive Peak Reverse Voltage	V _{RRM}		30	V
Nonrepetitive Peak Reverse Surge Voltage	V _{RSM}		35	V
Average Output Current	I _O		1	A
Surge Forward Current	I _{FSM}	50Hz sine wave, 1 cycle	10	A
Junction Temperature	T _j		-55 to +125	°C
Storage Temperature	T _{stg}		-55 to +125	°C

Package Dimensions

unit : mm (typ)

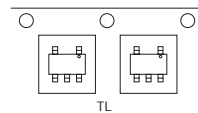
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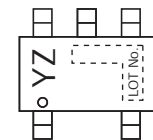
Product & Package Information

- Package : CPH5
- JEITA, JEDEC : SC-74A, SOT-25
- Minimum Packing Quantity : 3,000 pcs./reel

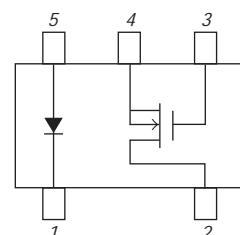
Packing Type : TL



Marking



Electrical Connection

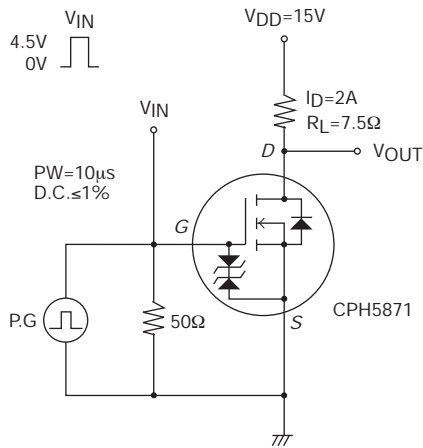


CPH5871

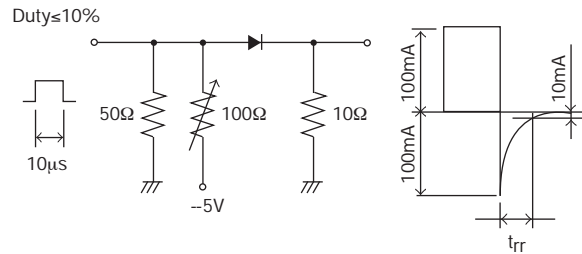
Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[MOSFET]						
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=1mA, V_{GS}=0V$	30			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS}=30V, V_{GS}=0V$			1	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 8V, V_{DS}=0V$			± 10	μA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=10V, I_D=1mA$	0.4		1.3	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=10V, I_D=2A$	2.0	3.4		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=2A, V_{GS}=4.5V$		40	52	$m\Omega$
	$R_{DS(on)2}$	$I_D=1A, V_{GS}=2.5V$		53	74	$m\Omega$
	$R_{DS(on)3}$	$I_D=0.5A, V_{GS}=1.8V$		82	132	$m\Omega$
Input Capacitance	C_{iss}	$V_{DS}=10V, f=1MHz$		430		pF
Output Capacitance	C_{oss}		59		pF	
Reverse Transfer Capacitance	C_{rss}		38		pF	
Turn-ON Delay Time	$t_{d(on)}$		See specified Test Circuit.		10	
Rise Time	t_r			41		ns
Turn-OFF Delay Time	$t_{d(off)}$			36		ns
Fall Time	t_f			37		ns
Total Gate Charge	Q_g	$V_{DS}=15V, V_{GS}=4.5V, I_D=3.5A$			4.7	
Gate-to-Source Charge	Q_{gs}		0.8		nC	
Gate-to-Drain "Miller" Charge	Q_{gd}		1.1		nC	
Diode Forward Voltage	V_{SD}	$I_S=3.5A, V_{GS}=0V$		0.8	1.2	V
[SBD]						
Reverse Voltage	V_R	$I_R=0.5mA$	30			V
Forward Voltage	V_{F1}	$I_F=0.7A$		0.45	0.5	V
	V_{F2}	$I_F=1A$		0.48	0.53	V
Reverse Current	I_R	$V_R=16V$			15	μA
Interterminal Capacitance	C	$V_R=10V, f=1MHz, 1\text{ cycle}$		27		pF
Reverse Recovery Time	t_{rr}	$I_F=I_R=100mA$, See specified Test Circuit.			10	ns

Switching Time Test Circuit (MOSFET)

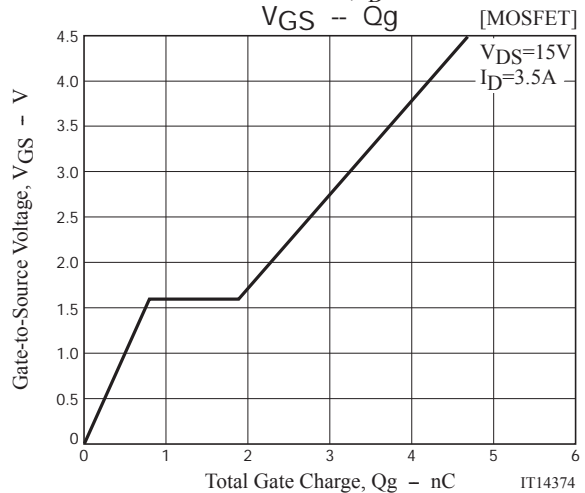
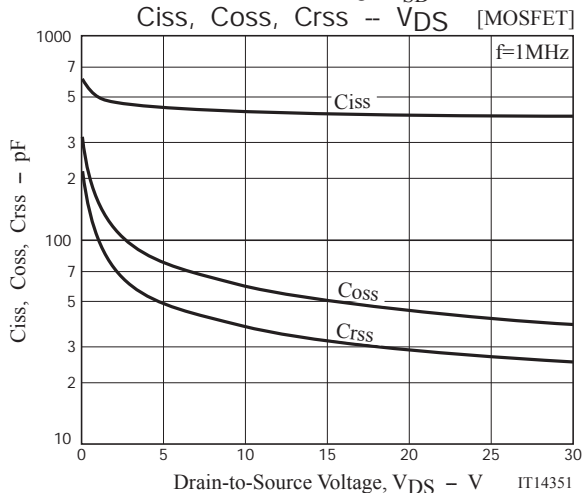
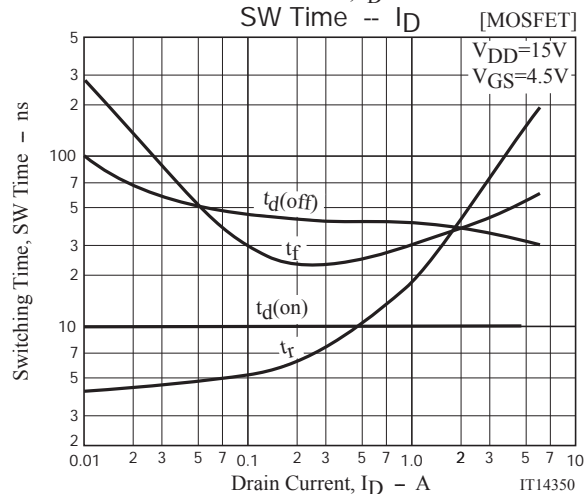
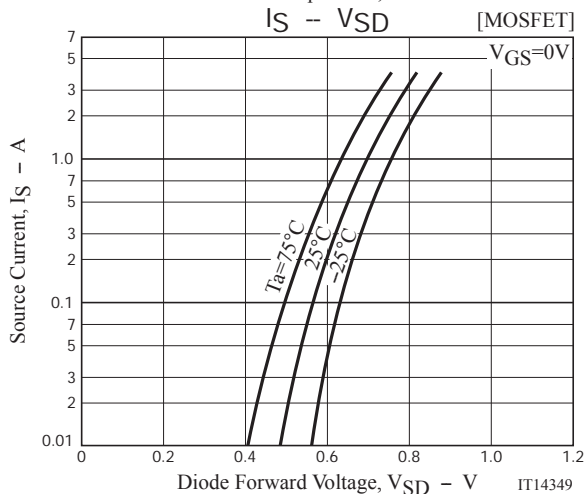
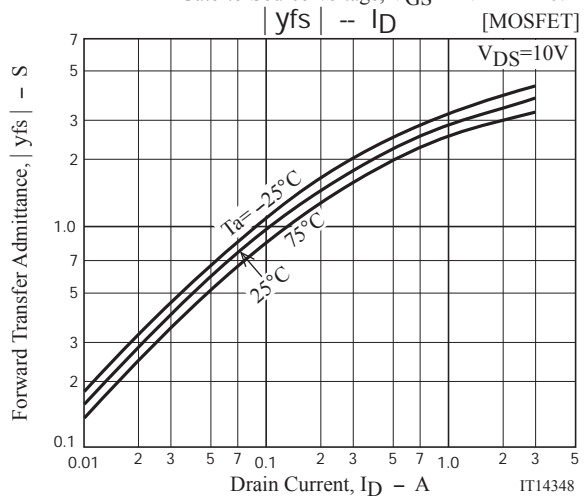
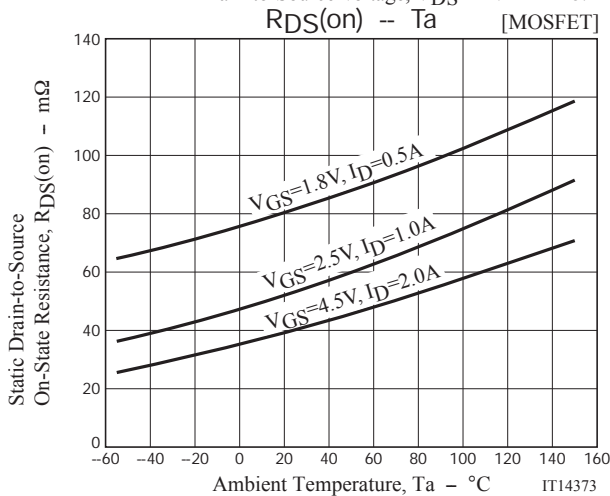
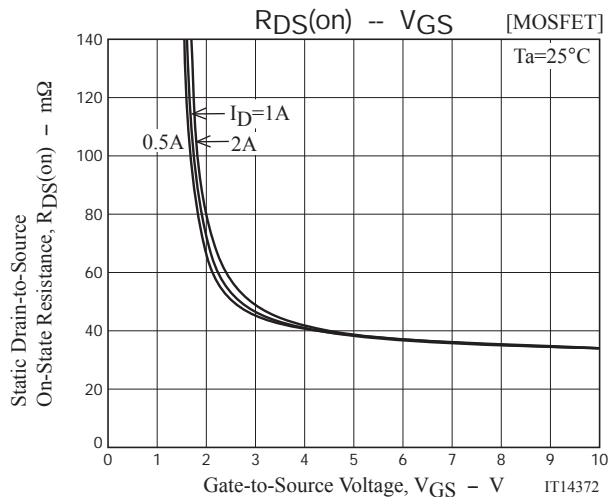
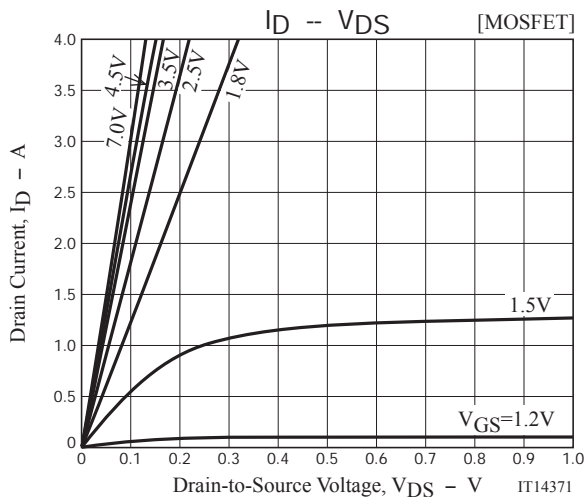


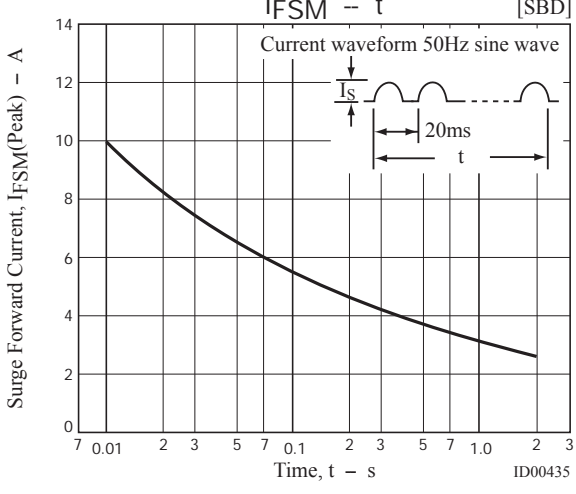
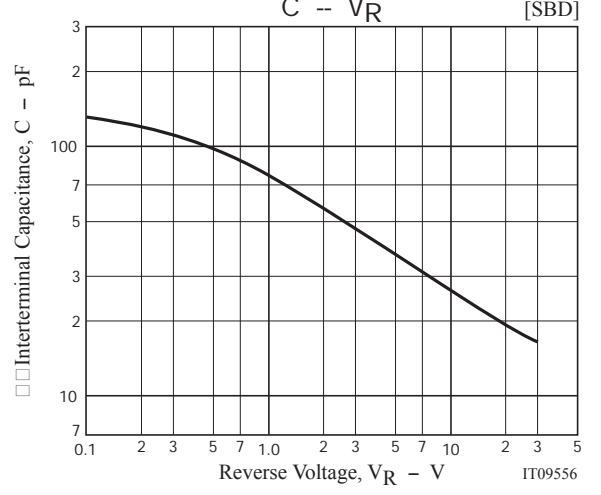
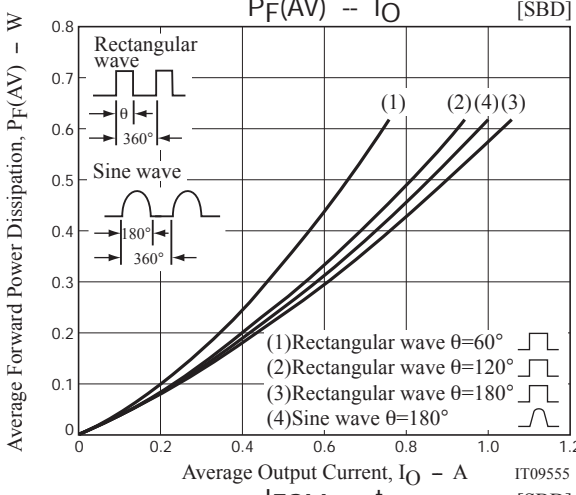
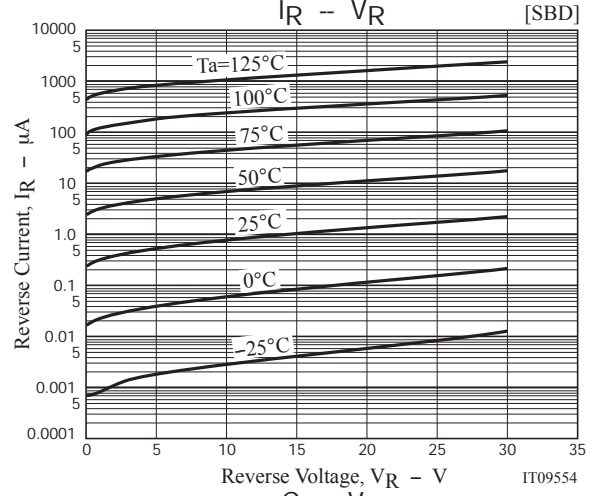
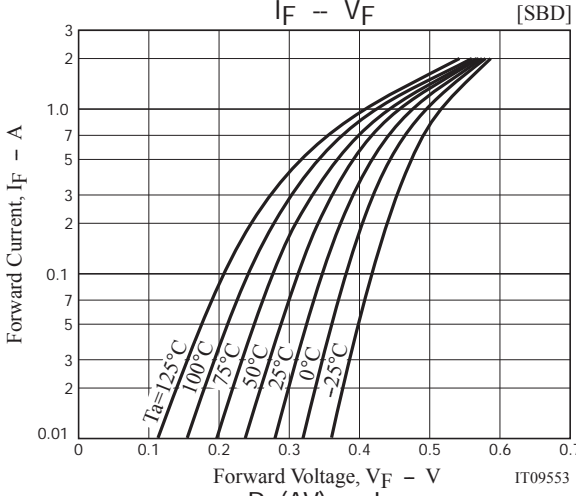
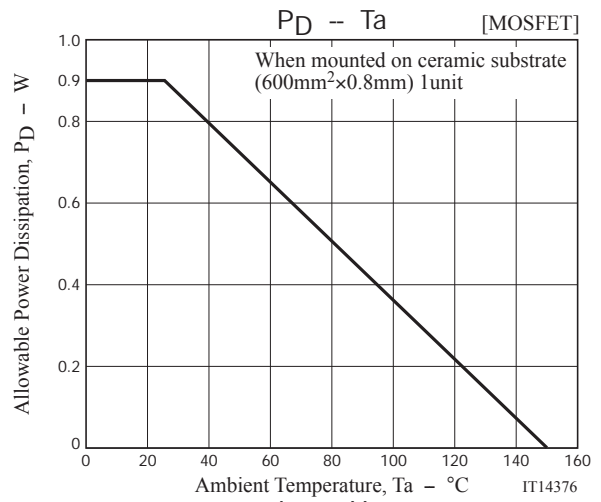
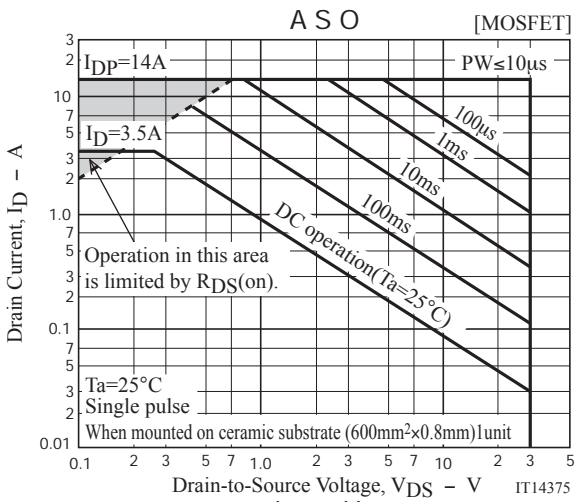
t_{rr} Test Circuit (SBD)



Ordering Information

Device	Package	Shipping	memo
CPH5871-TL-H	CPH5	3,000pcs./reel	Pb Free and Halogen Free





Embossed Taping Specification

CPH5871-TL-H

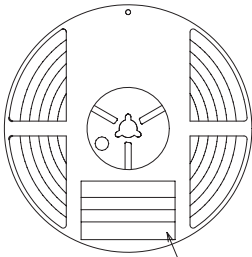
1. Packing Format

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)
CPH5	CPH6	3,000	15,000	90,000	5 reels contained Dimensions:mm (external) 183×72×185	6 inner boxes contained Dimensions:mm (external) 440×195×210

Reel label, Inner box label
(unit:mm)

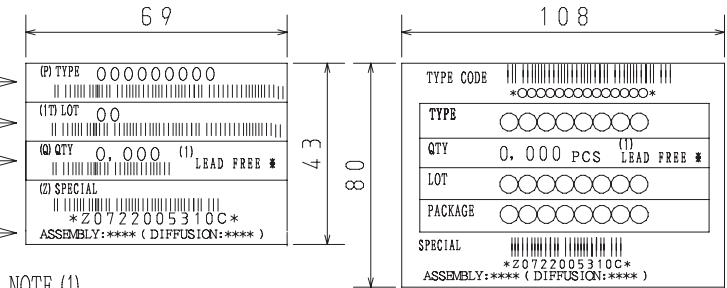
Outer box label
It is a label at the time of factory shipments.
The form of a label may change in physical distribution process.

Packing method



Reel label

Type No.
LOT No.
Quantity
Origin



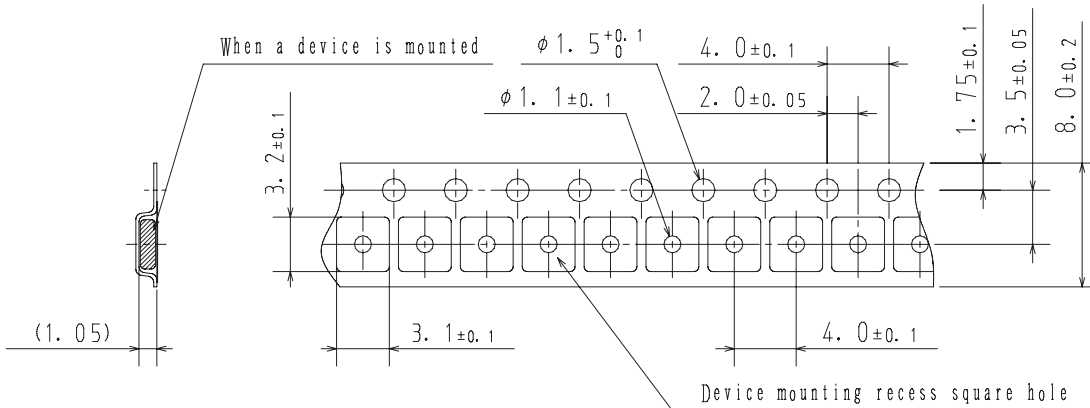
NOTE (1)

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

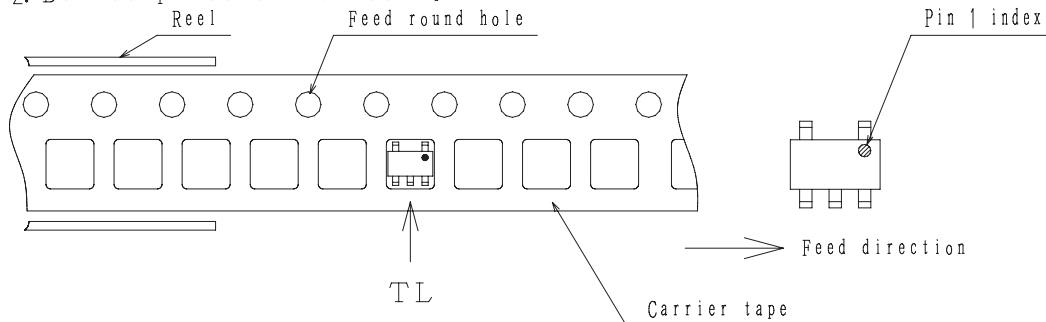
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

2-1. Carrier tape size (unit:mm)



2-2. Device placement direction



Those with pin 1 index on the feed hole side.....TL

Note on usage : Since the CPH5871 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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