Ordering number : EN8586A

SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

P-Channel Silicon MOSFET

2SJ661 — General-Purpose Switching Device Applications

Features

- ON-resistance $R_{DS}(on)1=29.5m\Omega$(typ.)
- 4V drive
- Input capacitance Ciss=4360pF (typ.)

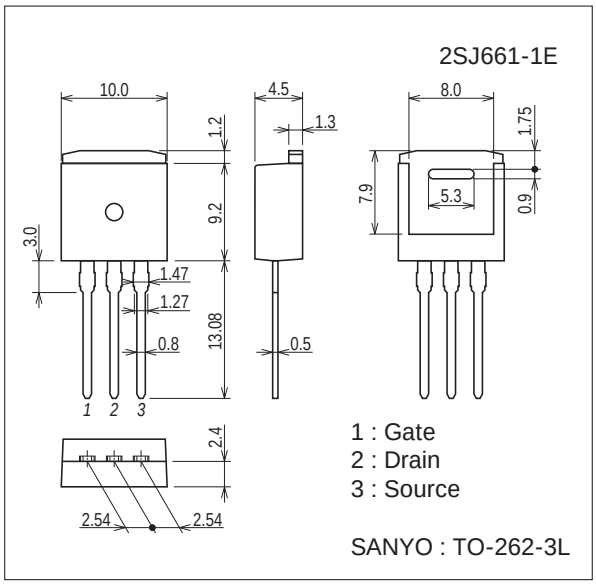
Specifications

Absolute Maximum Ratings at Ta=25°C

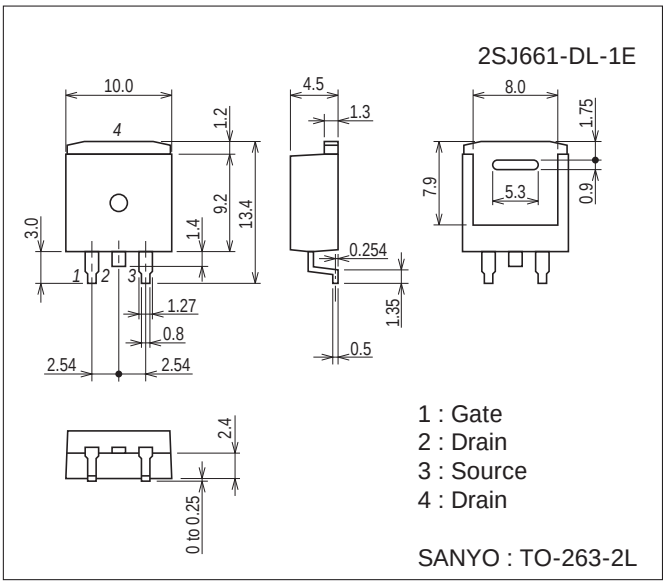
Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		−60	V
Gate-to-Source Voltage	V_{GSS}		±20	V
Drain Current (DC)	I_D		−38	A
Drain Current (Pulse)	I_{DP}	PW≤10μs, duty cycle≤1%	−152	A
Allowable Power Dissipation	P_D		1.65	W
		Tc=25°C	65	W

Continued on next page.

Package Dimensions unit : mm (typ)
7537-001



Package Dimensions unit : mm (typ)
7535-001

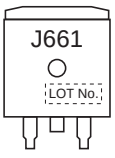


Product & Package Information

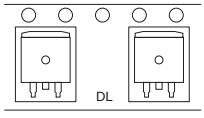
- Package : TO-262-3L
- JEITA, JEDEC : TO-262
- Minimum Packing Quantity : 50pcs./magazine

- Package : TO-263-2L
- JEITA, JEDEC : SC-83, TO-263
- Minimum Packing Quantity : 800pcs./reel

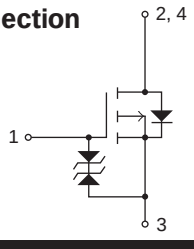
Marking



Packing Type : DL



Electrical Connection



Continued from preceding page.

Parameter	Symbol	Conditions	Ratings	Unit
Channel Temperature	Tch		150	°C
Storage Temperature	Tstg		−55 to +150	°C
Avalanche Energy (Single Pulse) *1	E_{AS}		250	mJ
Avalanche Current *2	I_{AV}		−38	A

Note :*1 V_{DD}=−30V, L=200μH, I_{AV}=−38A (Fig.1)
*2 L≤200μH, single pulse

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	−60			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=−60V, 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=−19A	18	31		S
Static Drain-to-Source On-State Resistance	R_{DS}(on)1	I_D=−19A, V_{GS}=−10V		29.5	39	mΩ
	R_{DS}(on)2	I_D=−19A, V_{GS}=−4V		40	56	mΩ
Input Capacitance	Ciss	V_{DS}=−20V, f=1MHz		4360		pF
Output Capacitance	Coss			470		pF
Reverse Transfer Capacitance	Crss			335		pF
Turn-ON Delay Time	t_d(on)	See Fig.2		33		ns
Rise Time	t_r			285		ns
Turn-OFF Delay Time	t_d(off)			295		ns
Fall Time	t_f			195		ns
Total Gate Charge	Qg	V_{DS}=−30V, V_{GS}=−10V, I_D=−38A		80		nC
Gate-to-Source Charge	Qgs			15		nC
Gate-to-Drain “Miller” Charge	Qgd			12		nC
Diode Forward Voltage	V_{SD}	I_S=−38A, V_{GS}=0V		−1.0	−1.2	V

Fig.1 Avalanche Resistance Test Circuit

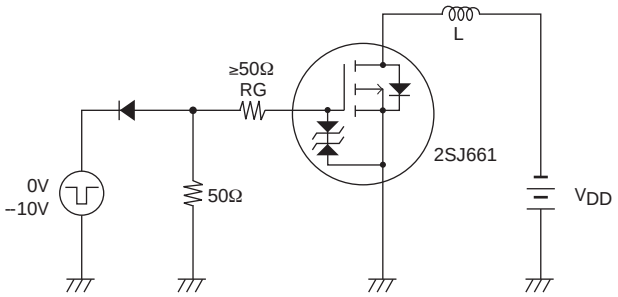
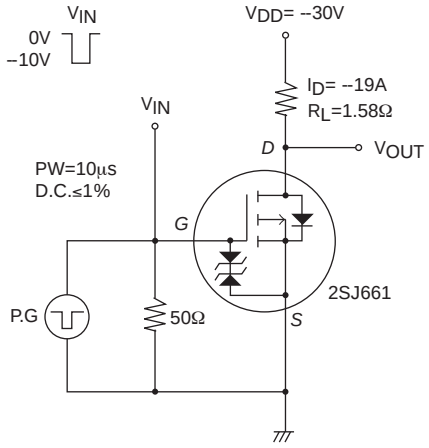
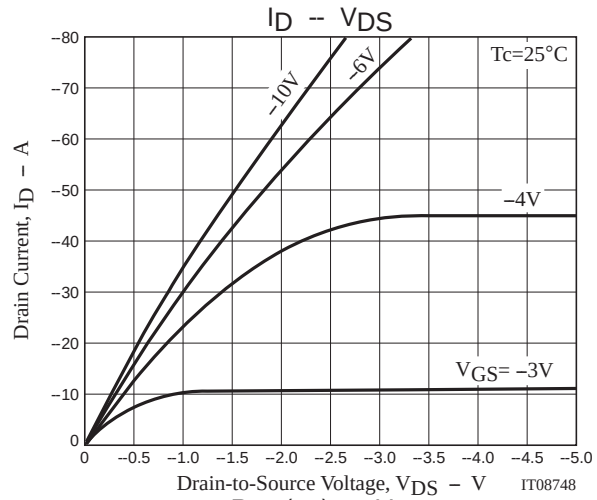


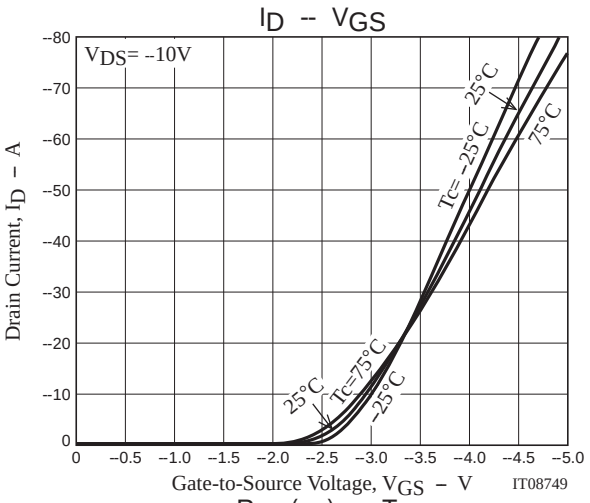
Fig.2 Switching Time Test Circuit

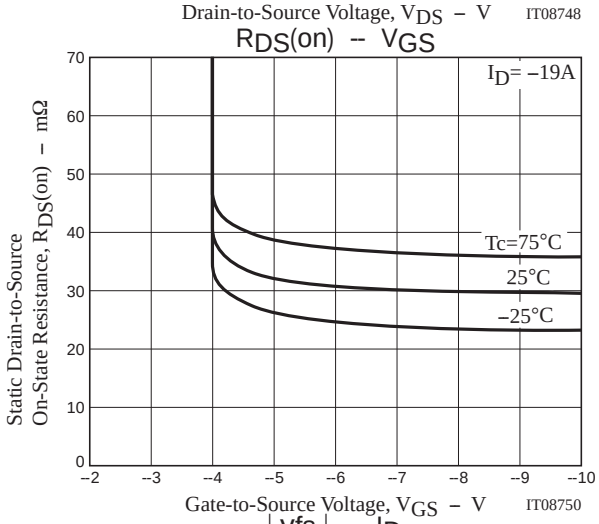


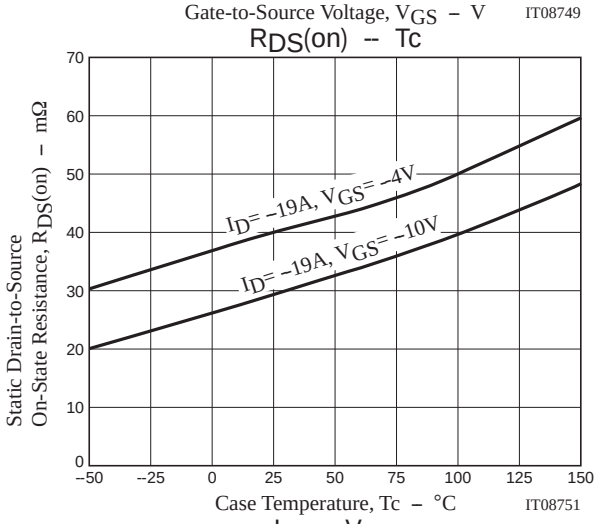
Ordering Information

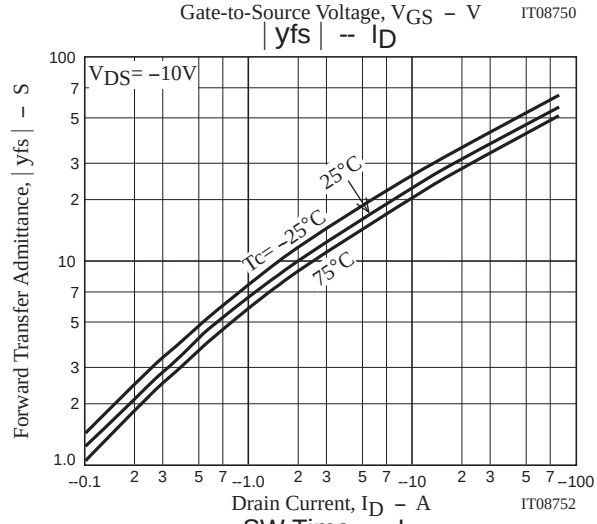
Device	Package	Shipping	memo
2SJ661-1E	TO-262-3L	50pcs./magazine	Pb Free
2SJ661-DL-1E	TO-263-2L	800pcs./reel	

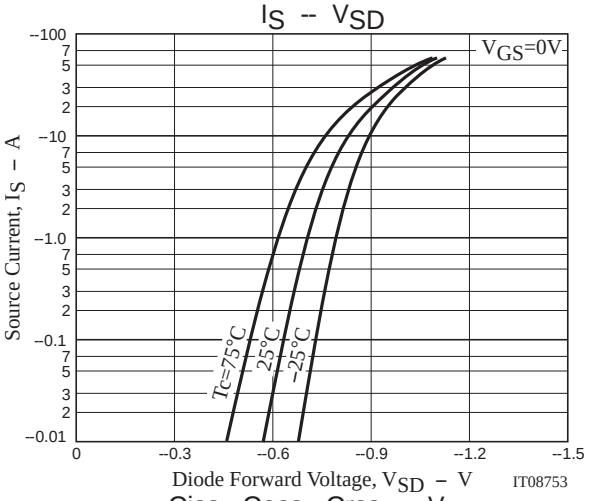

ID -- VDS
Tc=25°C
–10V
–6V
–4V
VGS= –3V
Drain Current, ID – A
Drain-to-Source Voltage, VDS – V
IT08748

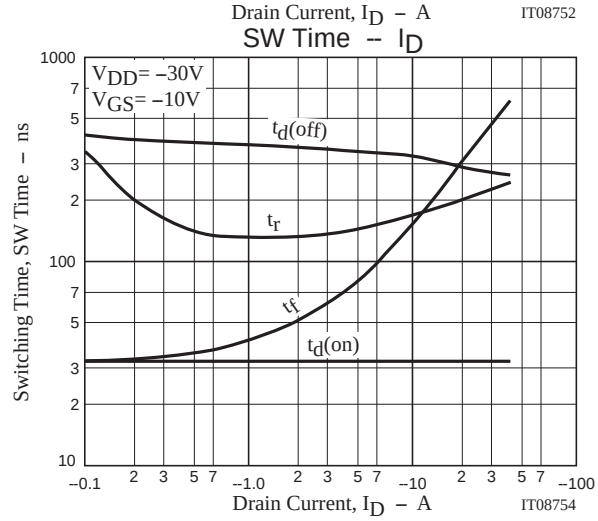

ID -- VGS
VDS= –10V
Tc= –25°C
25°C
75°C
Drain Current, ID – A
Gate-to-Source Voltage, VGS – V
IT08749

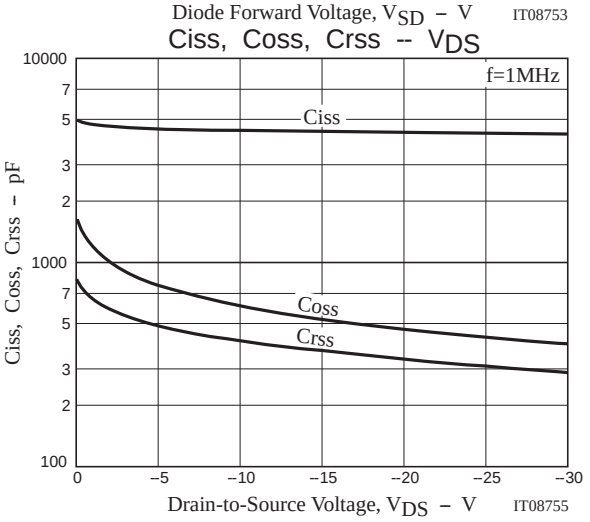

RDS(on) -- VGS
ID= –19A
Tc=75°C
25°C
–25°C
Static Drain-to-Source On-State Resistance, RDS(on) – mΩ
Gate-to-Source Voltage, VGS – V
IT08750

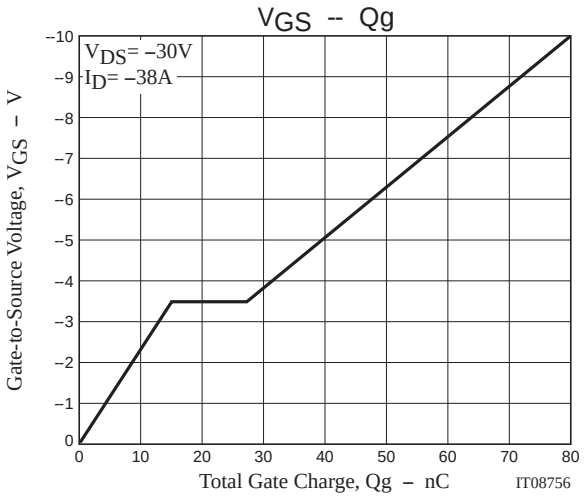

RDS(on) -- Tc
ID= –19A, VGS= –4V
ID= –19A, VGS= –10V
Static Drain-to-Source On-State Resistance, RDS(on) – mΩ
Case Temperature, Tc – °C
IT08751

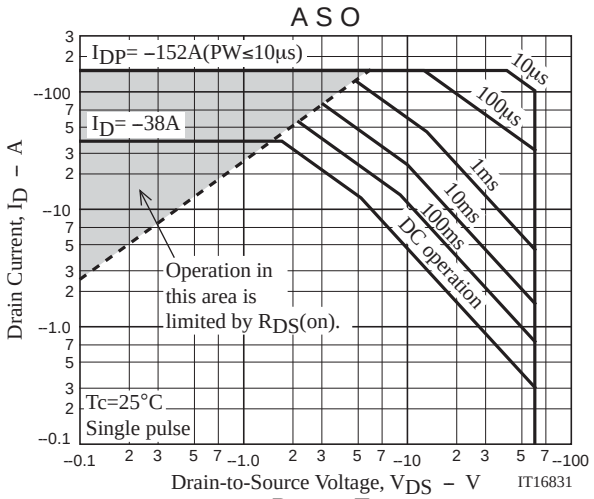

| yfs | -- ID
VDS= –10V
25°C
Tc= –25°C
75°C
Forward Transfer Admittance, | yfs | – S
Drain Current, ID – A
IT08752

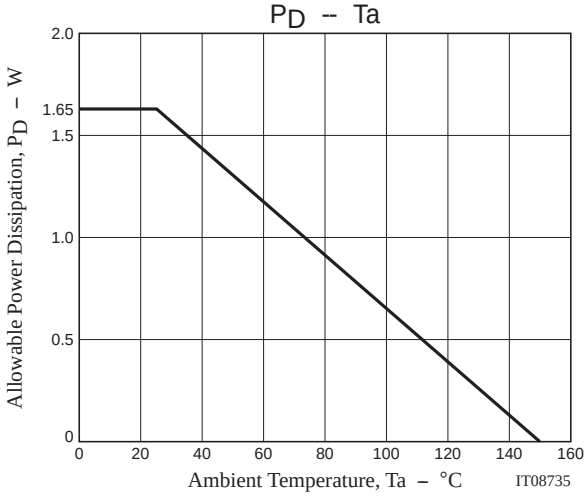

IS -- VSD
VGS=0V
Tc=75°C
25°C
–25°C
Source Current, IS – A
Diode Forward Voltage, VSD – V
IT08753

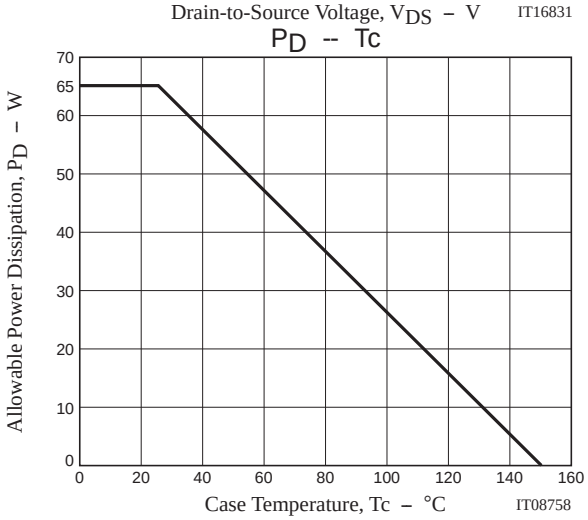

SW Time -- ID
VDD= –30V
VGS= –10V
td(off)
tr
tf
td(on)
Switching Time, SW Time – ns
Drain Current, ID – A
IT08754


Ciss, Coss, Crss -- VDS
f=1MHz
Ciss
Coss
Crss
Ciss, Coss, Crss – pF
Drain-to-Source Voltage, VDS – V
IT08755


VGS -- Qg
VDS= −30V
ID= −38A
Gate-to-Source Voltage, VGS – V
Total Gate Charge, Qg – nC
IT08756


A S O
IDP= −152A(PW≤10μs)
ID= −38A
10μs
100μs
1ms
10ms
100ms
DC operation
Operation in this area is limited by RDS(on).
Tc=25°C
Single pulse
Drain Current, ID – A
Drain-to-Source Voltage, VDS – V
IT16831


PD -- Ta
Allowable Power Dissipation, PD – W
Ambient Temperature, Ta – °C
IT08735


PD -- Tc
Allowable Power Dissipation, PD – W
Case Temperature, Tc – °C
IT08758

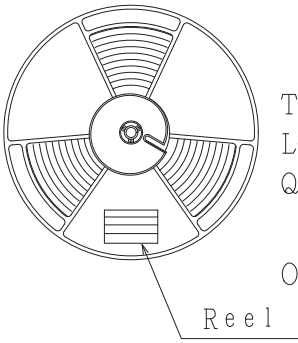
Taping Specification

2SJ661-DL-1E

1. Packing Format

Package Name	Maximum Number of devices contained (pcs)			Packing format	
	Reel	Inner box	Outer box	Inner BOX	Outer BOX
TO-263-2L	800	1600	6400	SPD-0V0011 2 reel contained Dimensions:mm(external) 351×340×68	SPD-0V0009 4 inner boxes contained Dimensions:mm(external) 390×370×318

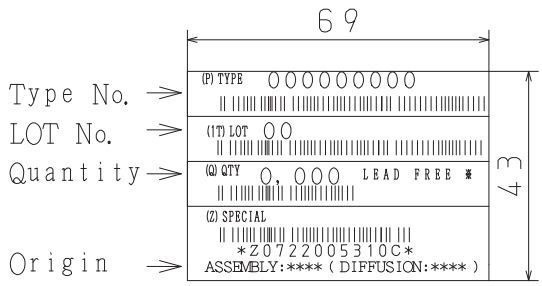
Packing method



Reel label

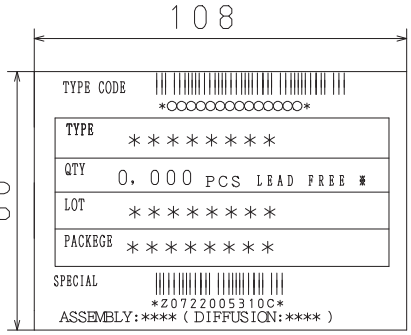
Reel label, Inner box label

(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.

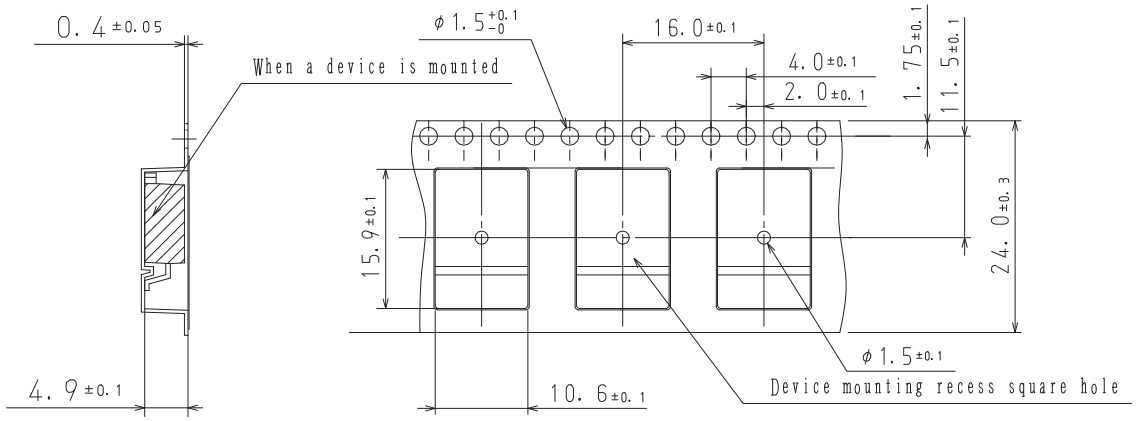


NOTE (1)
The LEAD FREE ※ description shows that the surface treatment of the terminal is lead free.

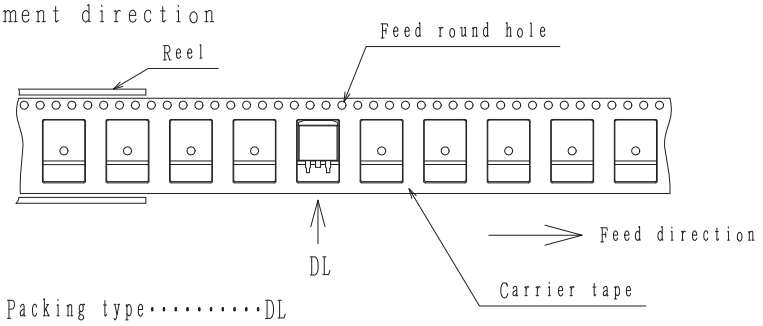
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A

2. Taping configuration

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

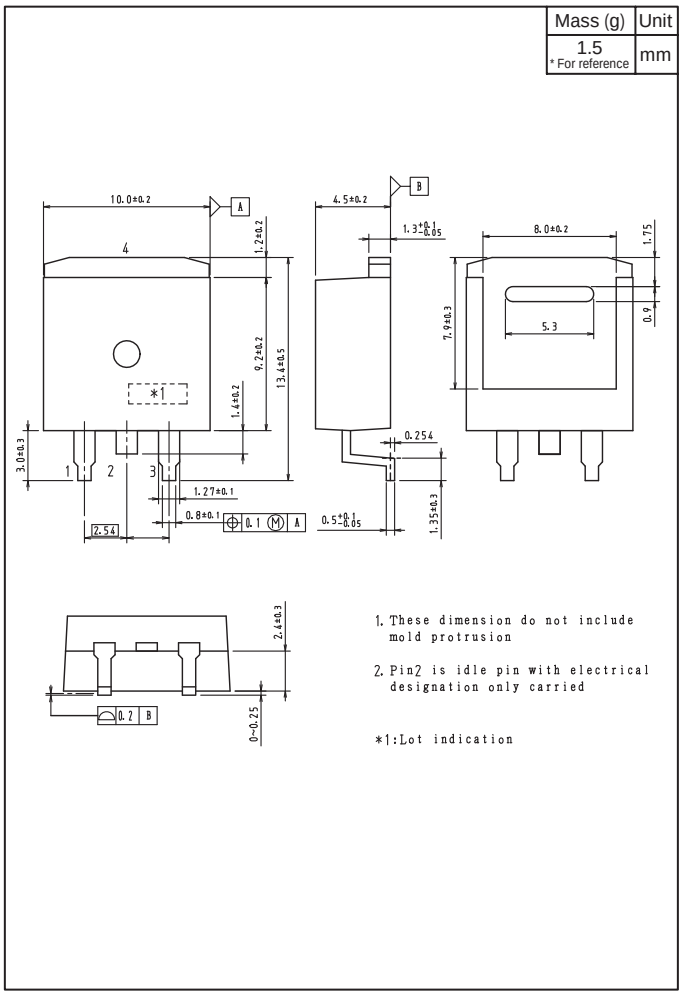


2-2. Device placement direction

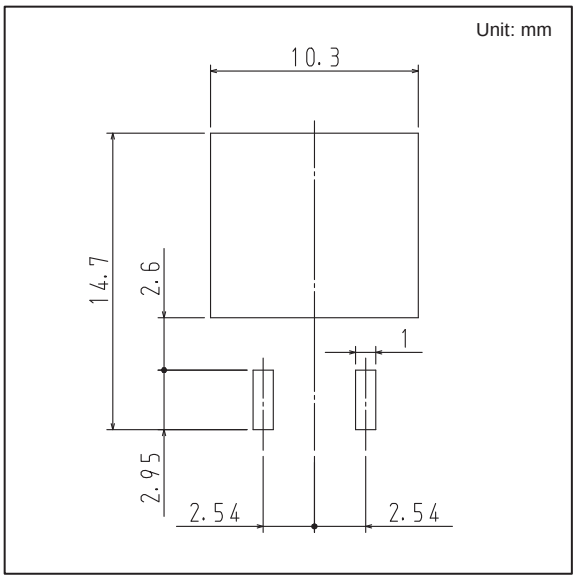


Outline Drawing

2SJ661-DL-1E



Land Pattern Example



Magazine Specification

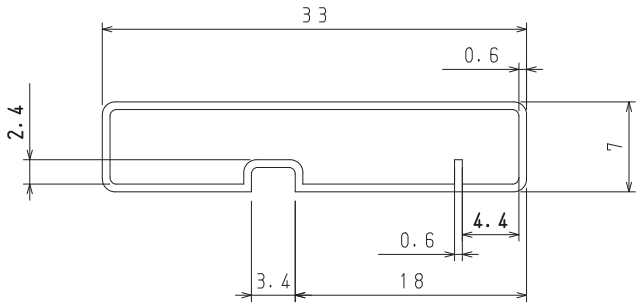
2SJ661-1E

1. Packing Format

Package Name	Maximum Number of devices contained (pcs)			Packing format	
	Magazine	Inner box	Outer box	Inner BOX	Outer BOX
TO-262-3L	50	1,000	4000	SPD-0V0001 20 magazines contained Dimensions:mm(external) 568×150×55	SPD-LV0010 4 inner boxes contained Dimensions:mm(external) 590x225x178

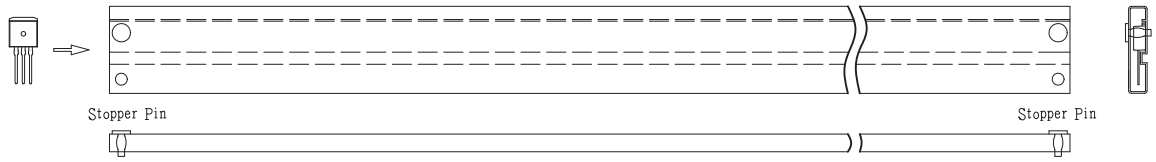
2. Magazine dimensions

(unit:mm)

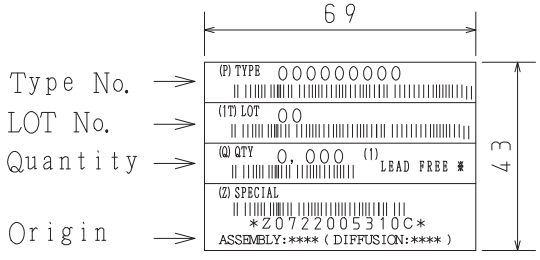


Tolerance=±0.2mm
Thickness=0.6+0.2/−0mm
Length =512.6±1mm
Material =PVC(Antistatic treatment)

3. Storage method to magazine

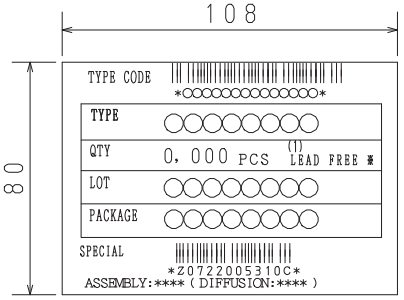


4. Inner box label (unit:mm)



5. 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.

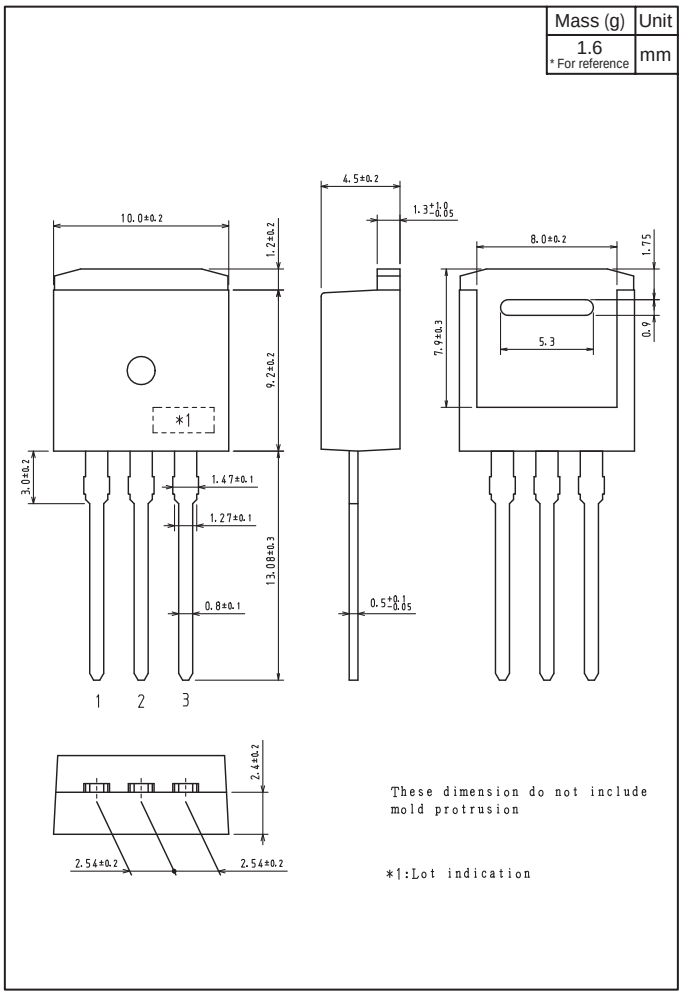


NOTE (1)
The LEAD FREE ※ description shows that the surface treatment of the terminal is lead free.

Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A

Outline Drawing

2SJ661-1E



Note on usage : Since the 2SJ661 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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