Ordering number : ENA0225C

SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

N-Channel Silicon MOSFET

2SK4066 — General-Purpose Switching Device Applications

Features

- ON-resistance $R_{DS}(on)1=3.6m\Omega$(typ.)
- 4V drive
- Input capacitance Ciss=12500pF (typ.)

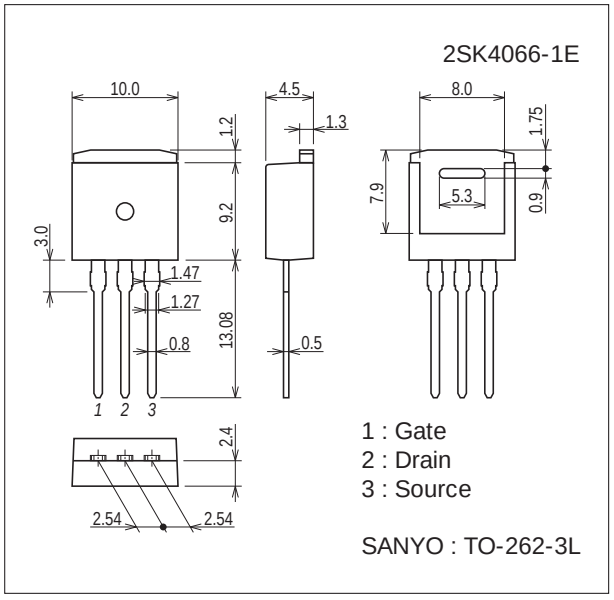
Specifications

Absolute Maximum Ratings at Ta=25°C

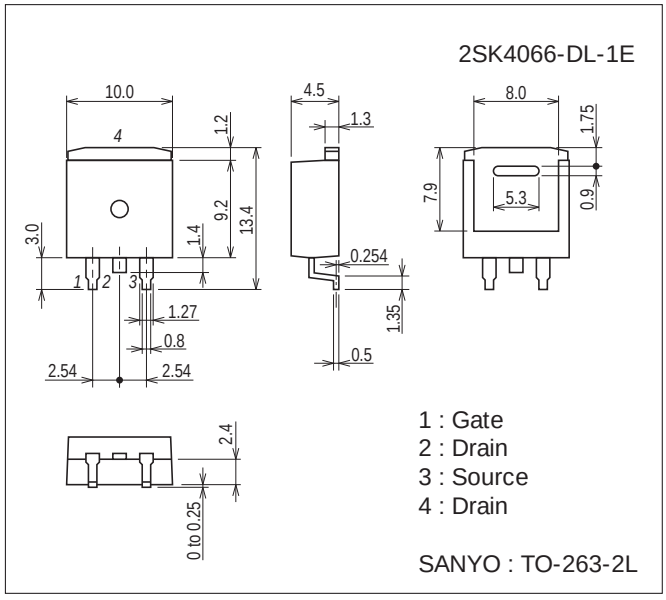
Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		60	V
Gate-to-Source Voltage	V_{GSS}		±20	V
Drain Current (DC)	I_D		100	A
Drain Current (Pulse)	I_{DP}	PW≤10μs, duty cycle≤1%	400	A
Allowable Power Dissipation	P_D		1.65	W
		Tc=25℃	90	W

Continued on next page.

Package Dimensions unit : mm (typ)
7537-001



Package Dimensions unit : mm (typ)
7535-001

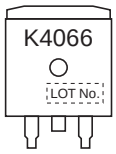


Product & Package Information

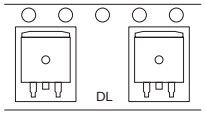
- Package : TO-262-3L
- JEITA, JEDEC : TO-262
- Minimum Packing Quantity : 50pcs./magazine

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

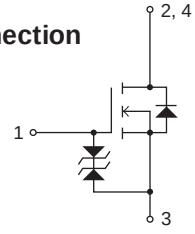
Marking



Packing Type : DL



Electrical Connection



Continued from preceding page.

Parameter	Symbol	Conditions	Ratings	Unit
Channel Temperature	Tch		150	℃
Storage Temperature	Tstg		−55 to +150	℃
Avalanche Energy (Single Pulse) *1	E_{AS}		850	mJ
Avalanche Current *2	I_{AV}		70	A

Note :*1 V_{DD}=30V, L=200μH, I_{AV}=70A (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=50A	51	85		S
Static Drain-to-Source On-State Resistance	R_{DS}(on)1	I_D=50A, V_{GS}=10V		3.6	4.7	mΩ
	R_{DS}(on)2	I_D=50A, V_{GS}=4V		4.7	6.6	mΩ
Input Capacitance	Ciss	V_{DS}=20V, f=1MHz		12500		pF
Output Capacitance	Coss			1200		pF
Reverse Transfer Capacitance	Crss			950		pF
Turn-ON Delay Time	t_d(on)	See Fig.2		80		ns
Rise Time	t_r			630		ns
Turn-OFF Delay Time	t_d(off)			860		ns
Fall Time	t_f			750		ns
Total Gate Charge	Qg	V_{DS}=30V, V_{GS}=10V, I_D=100A		220		nC
Gate-to-Source Charge	Qgs			31		nC
Gate-to-Drain “Miller” Charge	Qgd			55		nC
Diode Forward Voltage	V_{SD}	I_S=100A, V_{GS}=0V		0.9	1.2	V

Fig.1 Avalanche Resistance Test Circuit

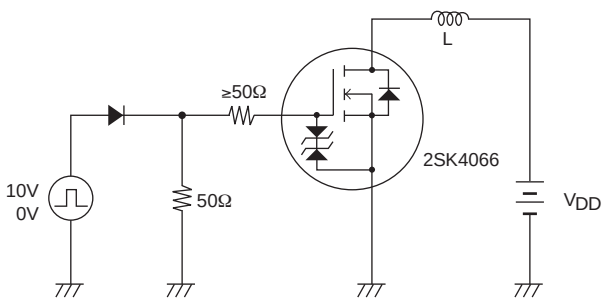
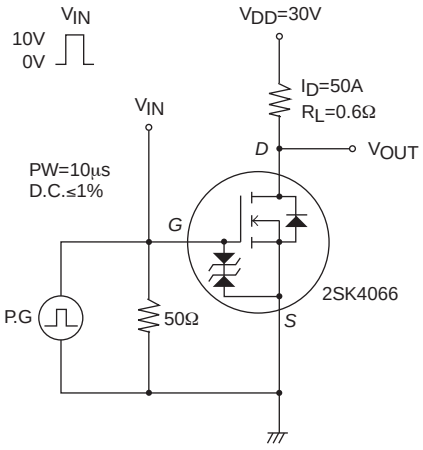
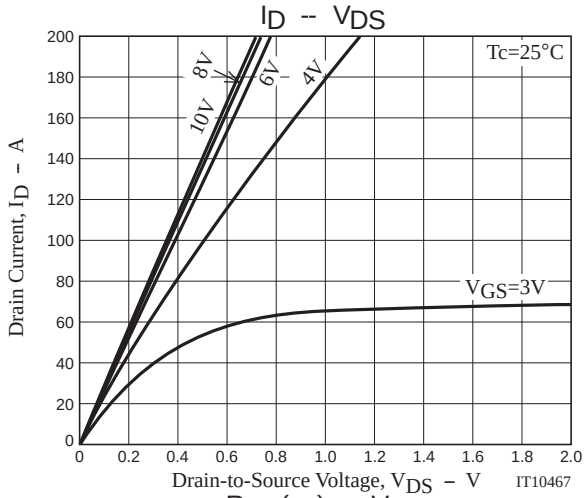


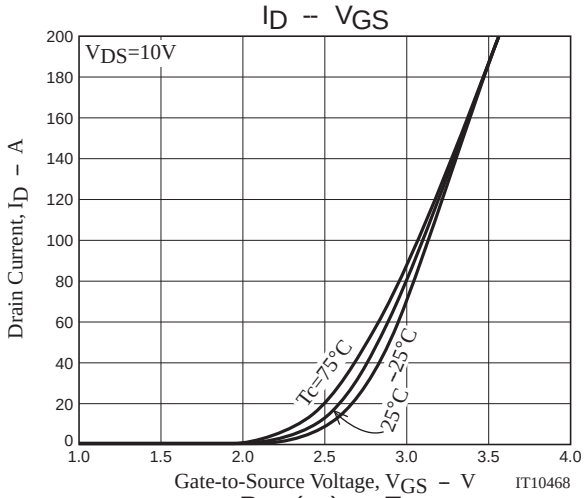
Fig.2 Switching Time Test Circuit

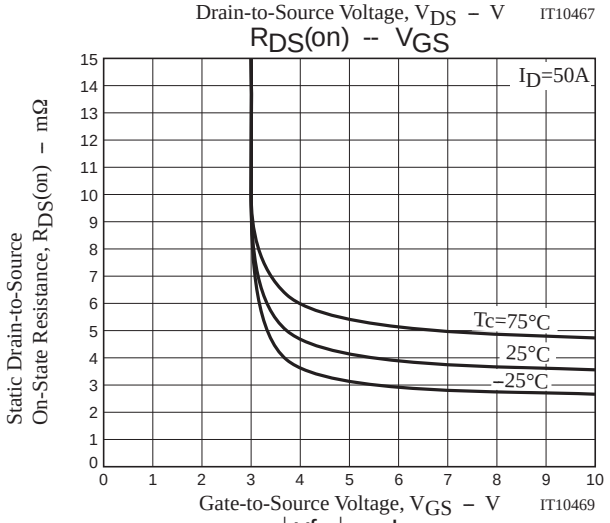


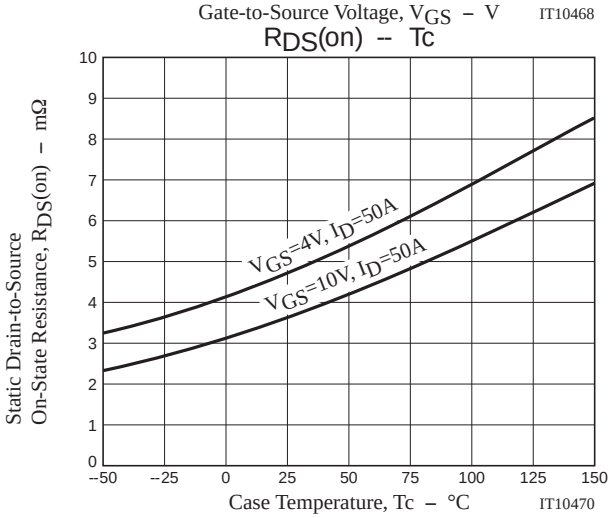
Ordering Information

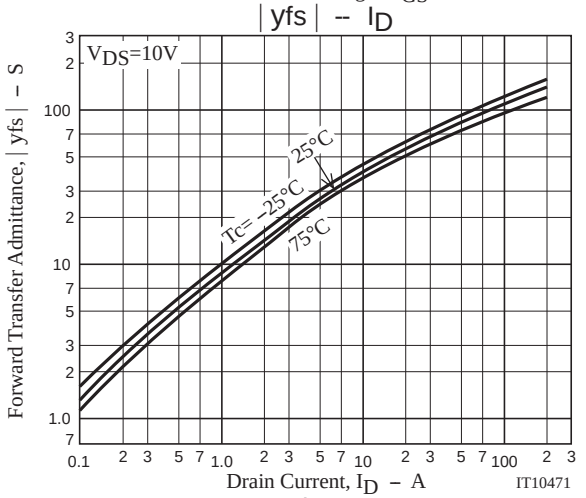
Device	Package	Shipping	memo
2SK4066-1E	TO-262-3L	50pcs./magazine	Pb Free
2SK4066-DL-1E	TO-263-2L	800pcs./reel	

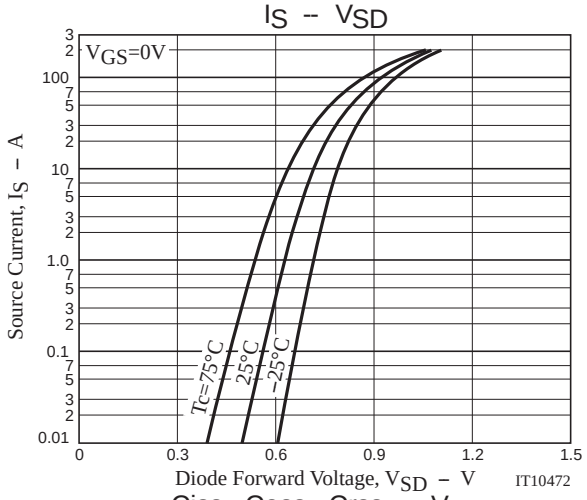

ID -- VDS
Tc=25°C
8V
10V
6V
4V
VGS=3V
Drain Current, ID – A
Drain-to-Source Voltage, VDS – V
IT10467

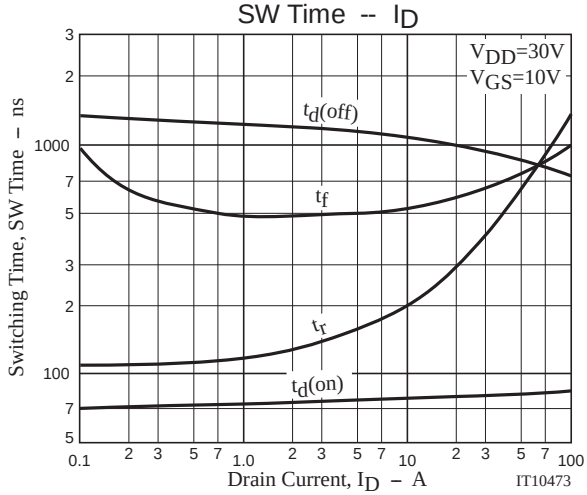

ID -- VGS
VDS=10V
Tc=75°C
25°C
–25°C
Drain Current, ID – A
Gate-to-Source Voltage, VGS – V
IT10468

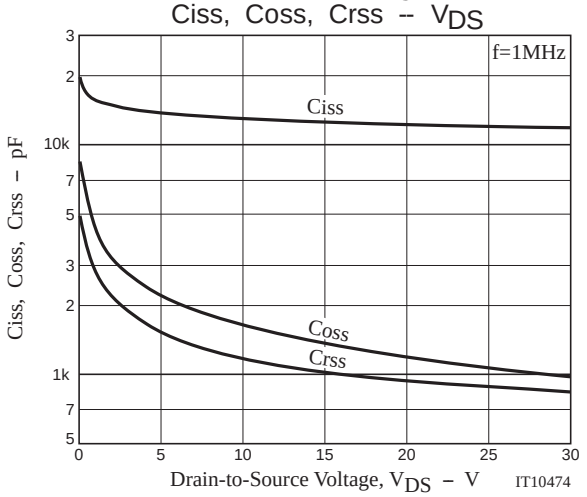

RDS(on) -- VGS
ID=50A
Tc=75°C
25°C
–25°C
Static Drain-to-Source On-State Resistance, RDS(on) – mΩ
Gate-to-Source Voltage, VGS – V
IT10469

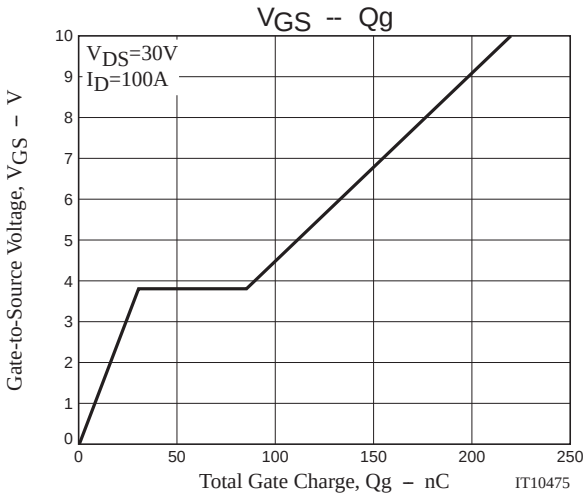

RDS(on) -- Tc
VGS=4V, ID=50A
VGS=10V, ID=50A
Static Drain-to-Source On-State Resistance, RDS(on) – mΩ
Case Temperature, Tc – °C
IT10470

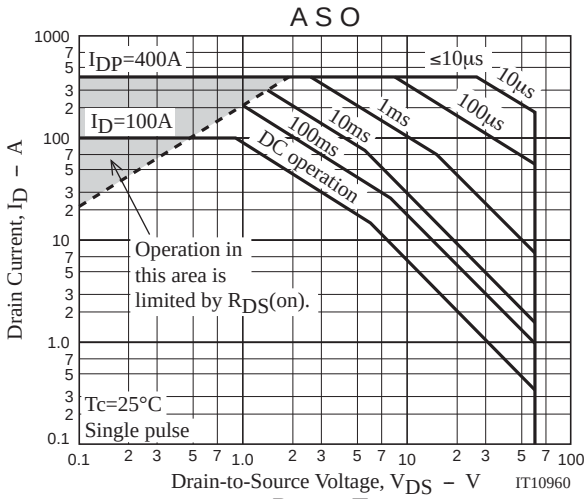

| yfs | -- ID
VDS=10V
25°C
Tc= –25°C
75°C
Forward Transfer Admittance, | yfs | – S
Drain Current, ID – A
IT10471

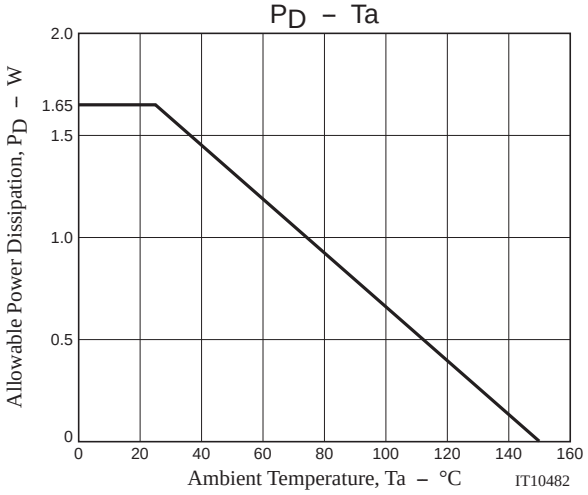

IS -- VSD
VGS=0V
Tc=75°C
25°C
–25°C
Source Current, IS – A
Diode Forward Voltage, VSD – V
IT10472

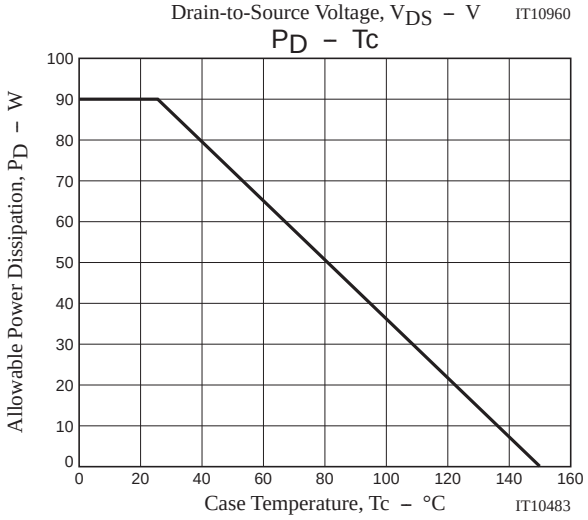

SW Time -- ID
VDD=30V
VGS=10V
td(off)
tf
tr
td(on)
Switching Time, SW Time – ns
Drain Current, ID – A
IT10473

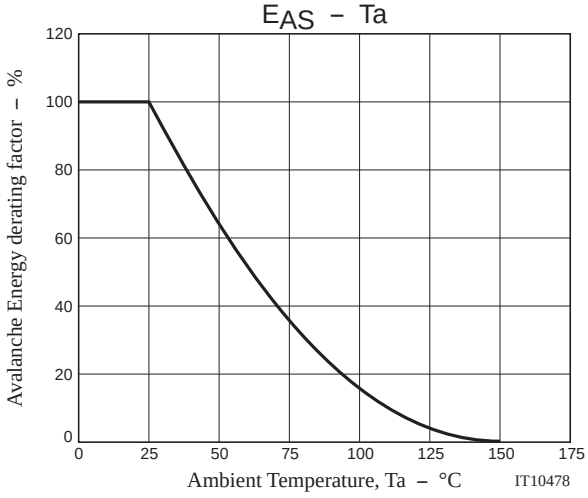

Ciss, Coss, Crss -- VDS
f=1MHz
Ciss
Coss
Crss
Ciss, Coss, Crss – pF
Drain-to-Source Voltage, VDS – V
IT10474


VGS -- Qg
VDS=30V
ID=100A
Gate-to-Source Voltage, VGS – V
Total Gate Charge, Qg – nC
IT10475


A S O
IDP=400A
ID=100A
≤10μs
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
IT10960


PD – Ta
Allowable Power Dissipation, PD – W
Ambient Temperature, Ta – °C
IT10482


PD – Tc
Allowable Power Dissipation, PD – W
Case Temperature, Tc – °C
IT10483


EAS – Ta
Avalanche Energy derating factor – %
Ambient Temperature, Ta – °C
IT10478

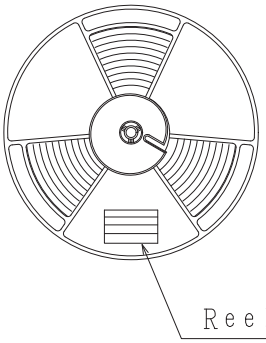
Taping Specification

2SK4066-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

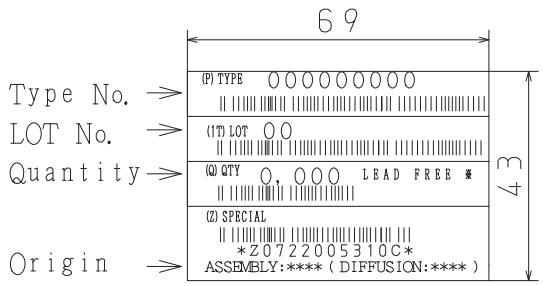
Packing method



Reel label

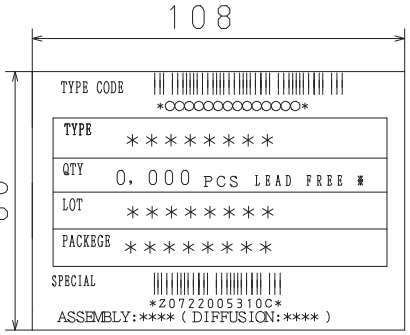
Reel label, Inner box label

(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.

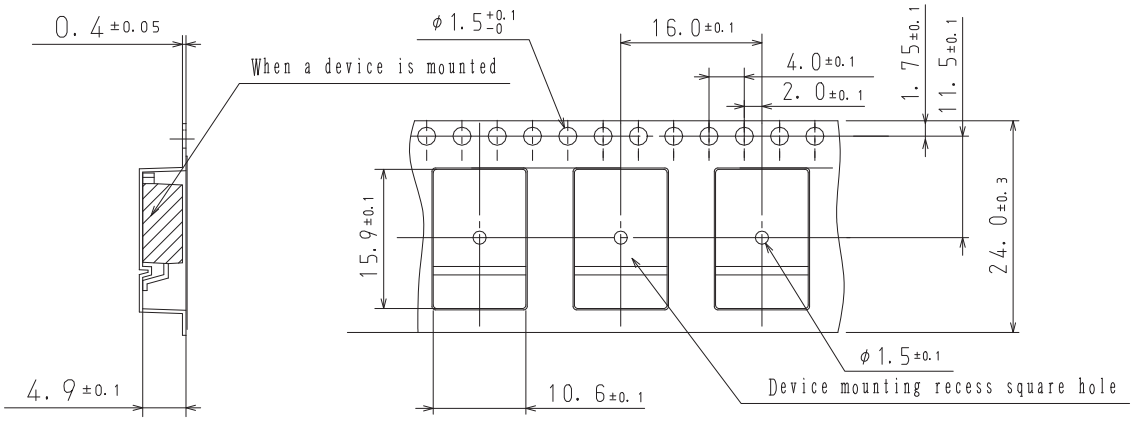


NOTE (1)
The LEAD FREE ※ description shows that the surface treatment of the terminal is lead free.

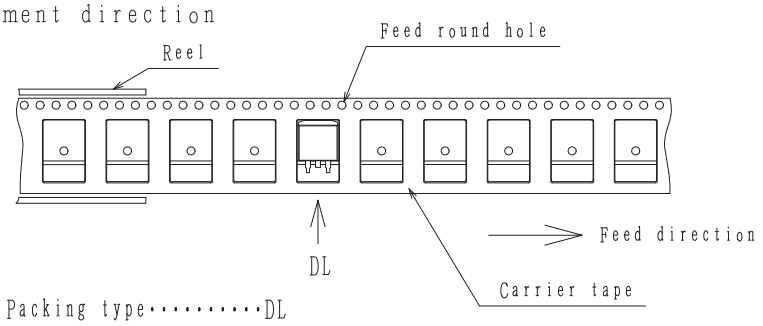
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A

2. Taping configuration

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

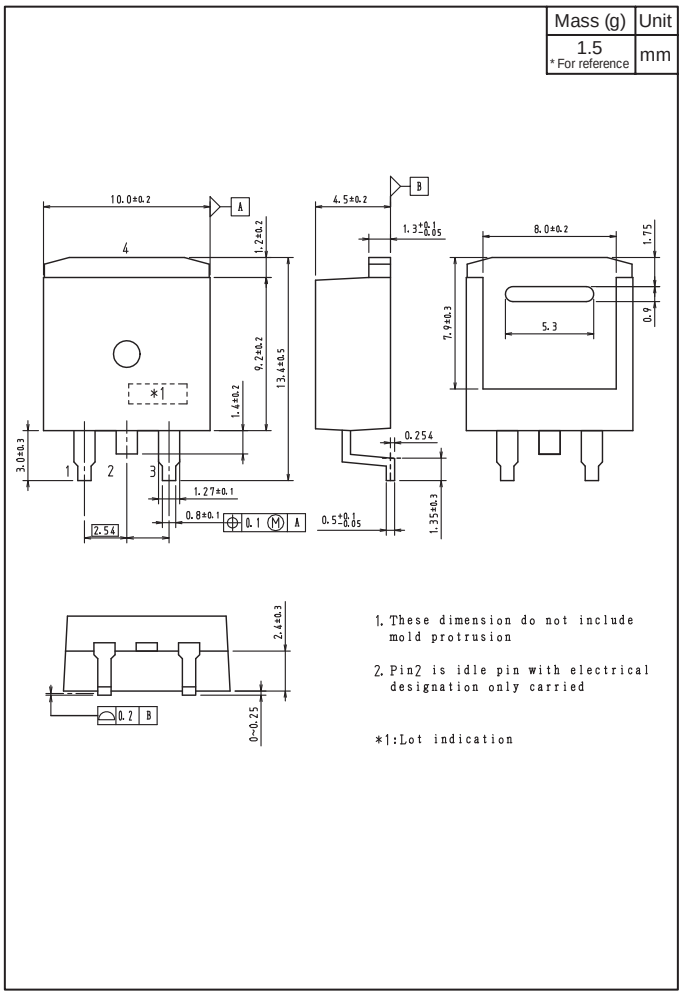


2-2. Device placement direction

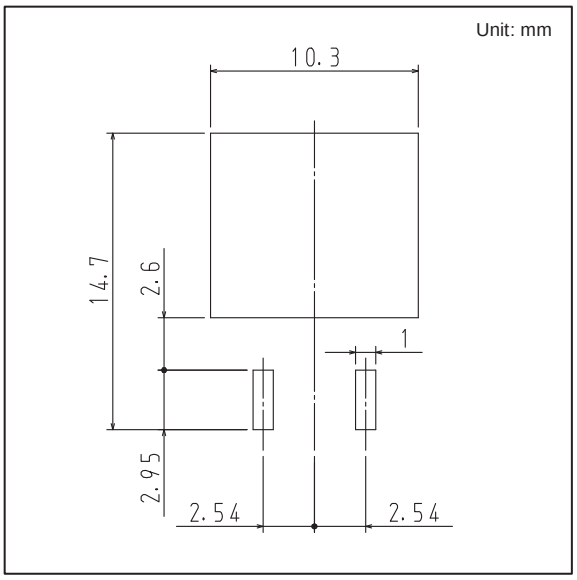


Outline Drawing

2SK4066-DL-1E



Land Pattern Example



Magazine Specification

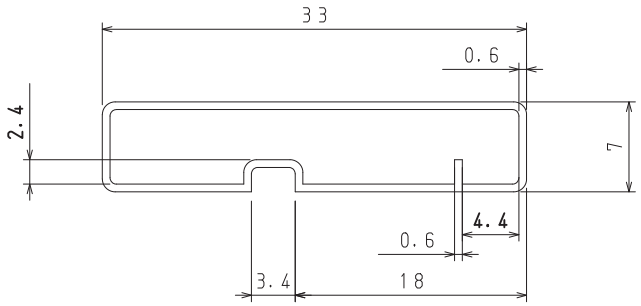
2SK4066-1E

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

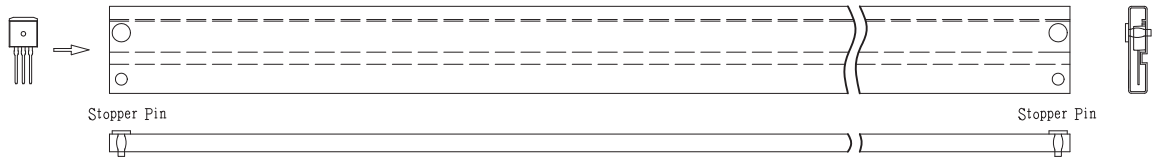
2. Magazine dimensions

(unit:mm)

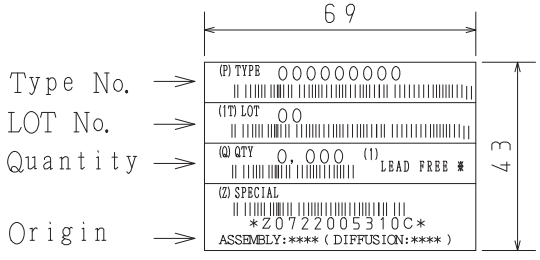


Tolerance=±0.2mm
Thickness=0.6+0.2/−0mm
Length =512.6±1mm
Material =PVC (Antistatic treatment)

3. Storage method to magazine

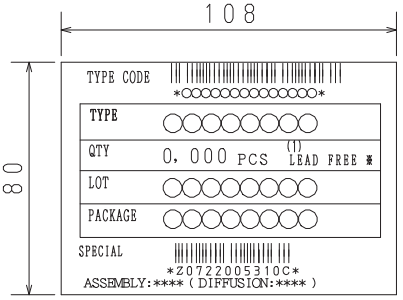


4. Inner box label (unit:mm)



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.

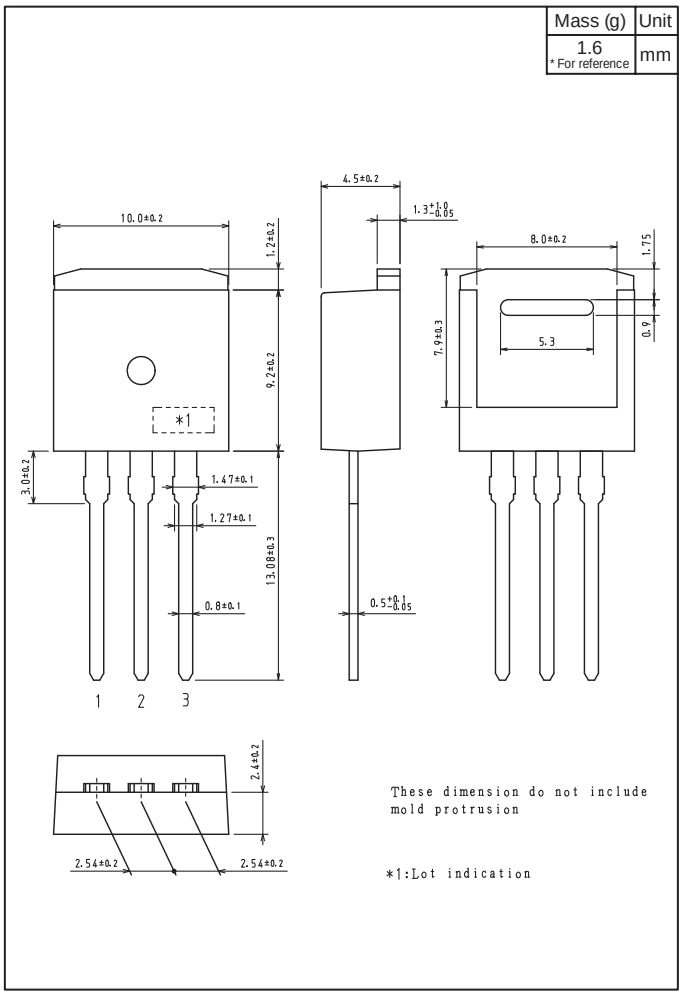


NOTE (1)
The LEAD FREE ※ description shows that the surface treatment of the terminal is lead free.

Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A

Outline Drawing

2SK4066-1E



Note on usage : Since the 2SK4066 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.