

2SK4124 — N-Channel Silicon MOSFET

General-Purpose Switching Device Applications

Features

- Low ON-resistance, low input capacitance, ultrahigh-speed switching
- Adoption of high reliability HVP process
- Avalanche resistance guarantee

Specifications

Absolute Maximum Ratings at $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DS}		500	V
Gate-to-Source Voltage	V_{GS}		± 30	V
Drain Current (DC)	I_D		20	A
Drain Current (Pulse)	I_{DP}	$PW \leq 10\mu\text{s}$, duty cycle $\leq 1\%$	60	A
Allowable Power Dissipation	P_D		2.5	W
		$T_c=25^\circ\text{C}$ (SANYO's ideal heat dissipation condition)*1	170	W
Channel Temperature	T_{ch}		150	$^\circ\text{C}$
Storage Temperature	T_{stg}		-55 to +150	$^\circ\text{C}$
Avalanche Energy (Single Pulse) *1	E_{AS}		110	mJ
Avalanche Current *2	I_{AV}		20	A

*1 SANYO's condition is radiation from backside.

The method is applying silicone grease to the backside of the device and attaching the device to water-cooled radiator made of aluminium.

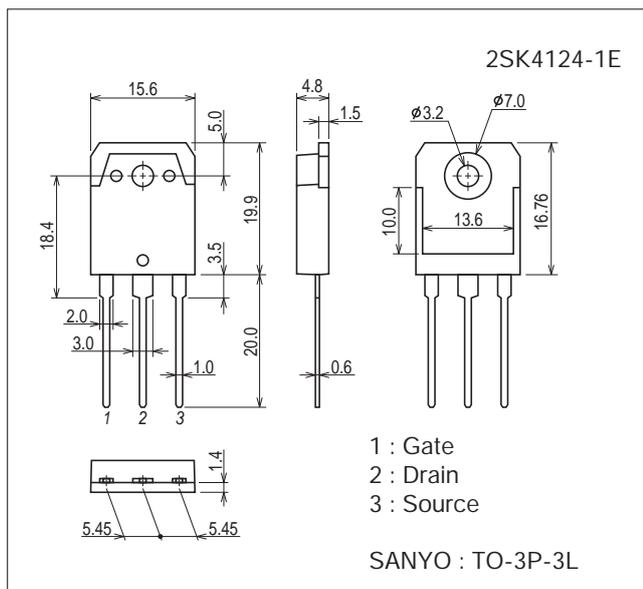
*2 $V_{DD}=50\text{V}$, $L=500\mu\text{H}$, $I_{AV}=20\text{A}$ (Fig.1)

*3 $L \leq 500\mu\text{H}$, single pulse

Package Dimensions

unit : mm (typ)

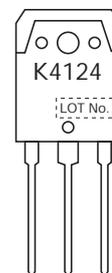
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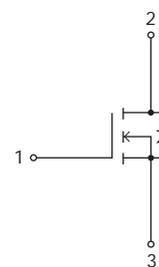
Product & Package Information

- Package : TO-3P-3L
- JEITA, JEDEC : SC-65, TO-247, SOT-199
- Minimum Packing Quantity : 30 pcs./magazine

Marking



Electrical Connection



2SK4124

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} =±30V, V _{DS} =0V			±100	nA	
Cutoff Voltage	V _{GS(off)}	V _{DS} =10V, I _D =1mA	3		5	V	
Forward Transfer Admittance	y _{fs}	V _{DS} =10V, I _D =10A	4.9	9.7		S	
Static Drain-to-Source On-State Resistance	R _{DS(on)}	I _D =8A, V _{GS} =10V		0.33	0.43	Ω	
Input Capacitance	C _{iss}	V _{DS} =30V, f=1MHz		1200		pF	
Output Capacitance	C _{oss}				250		pF
Reverse Transfer Capacitance	C _{rss}				55		pF
Turn-ON Delay Time	t _{d(on)}	See Fig.2		26.5		ns	
Rise Time	t _r			95		ns	
Turn-OFF Delay Time	t _{d(off)}			145		ns	
Fall Time	t _f			58		ns	
Total Gate Charge	Q _g	V _{DS} =200V, V _{GS} =10V, I _D =20A		46.6		nC	
Gate-to-Source Charge	Q _{gs}			8.7		nC	
Gate-to-Drain "Miller" Charge	Q _{gd}			27.3		nC	
Diode Forward Voltage	V _{SD}	I _S =20A, V _{GS} =0V		1.0	1.3	V	

Fig.1 Avalanche Resistance Test Circuit

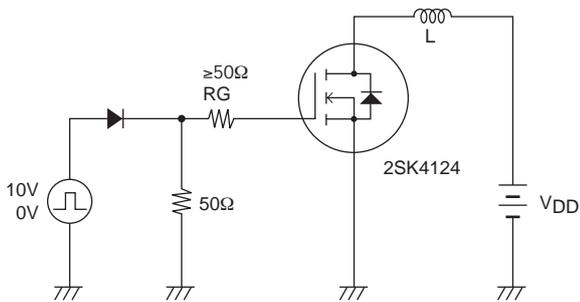
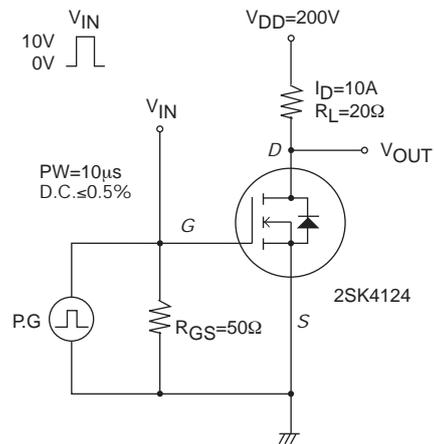
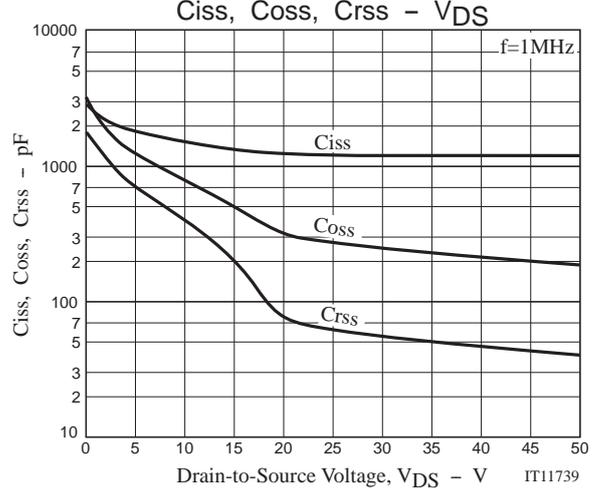
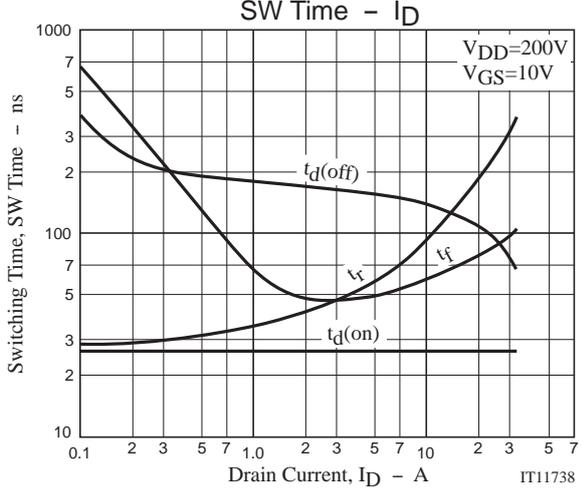
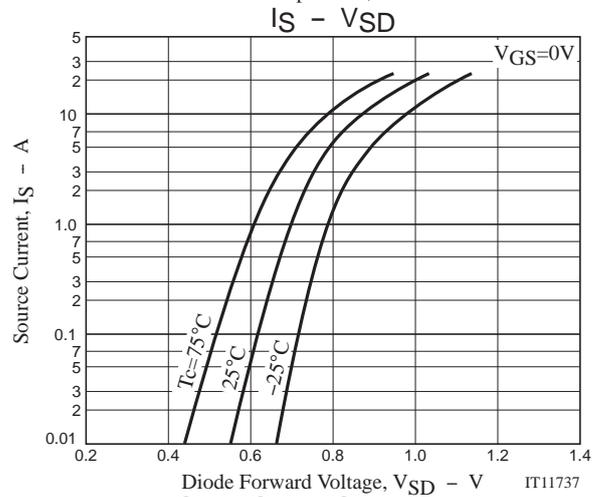
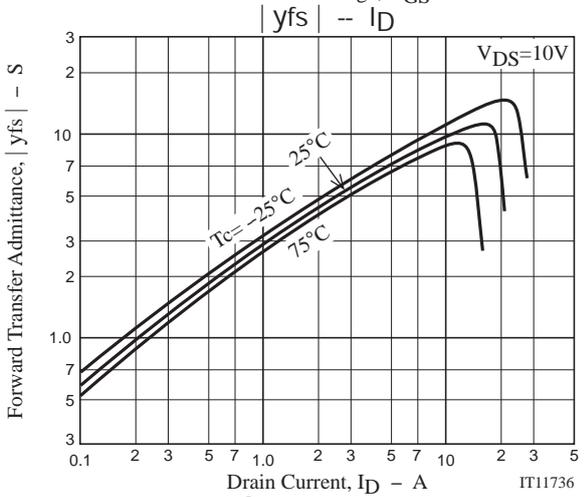
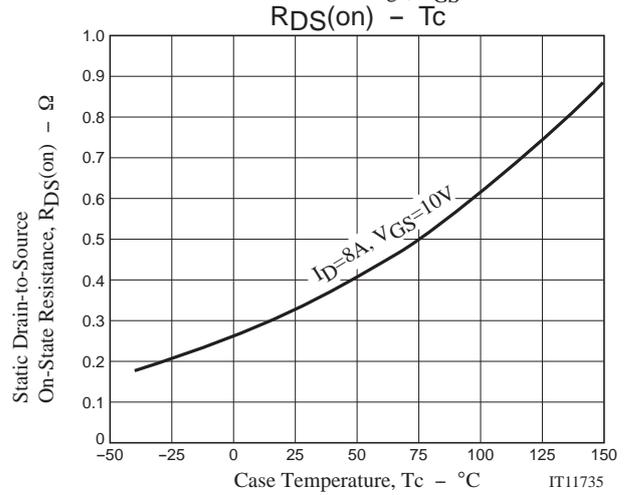
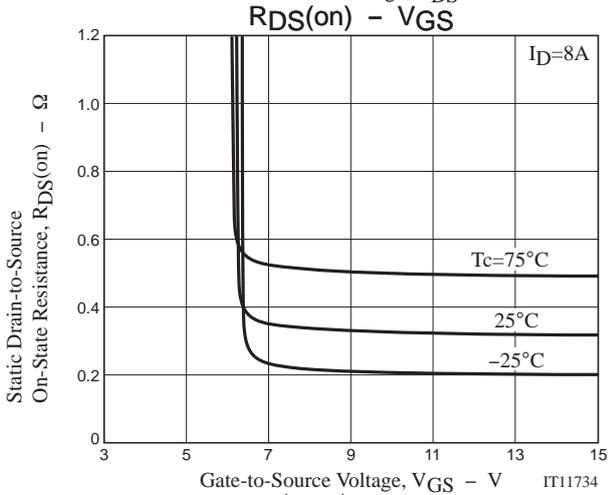
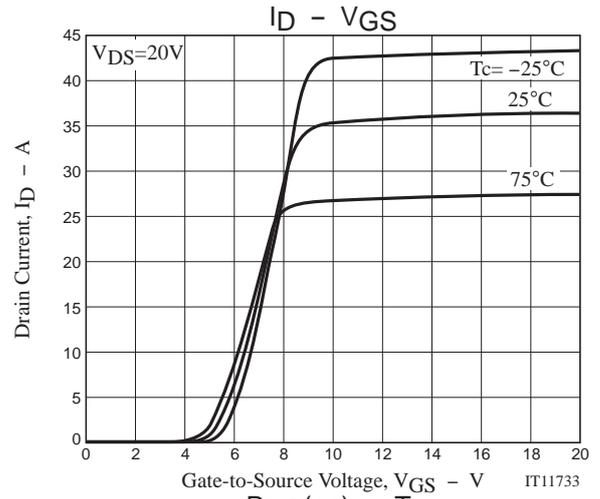
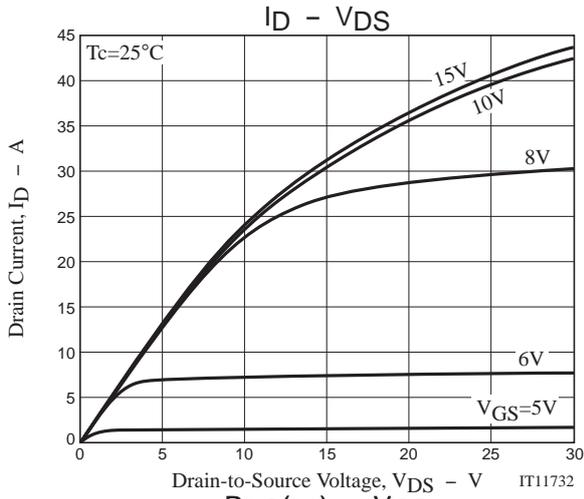


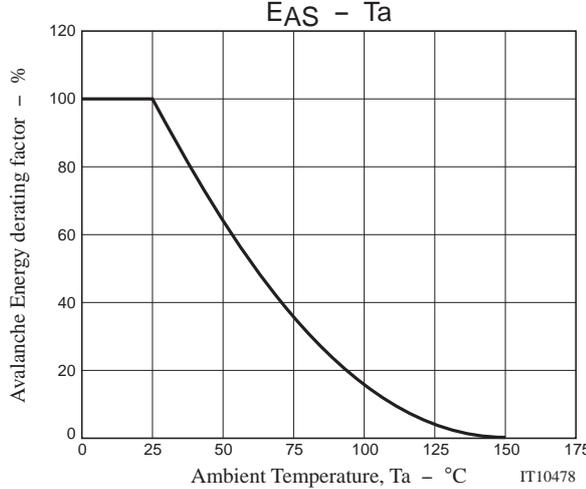
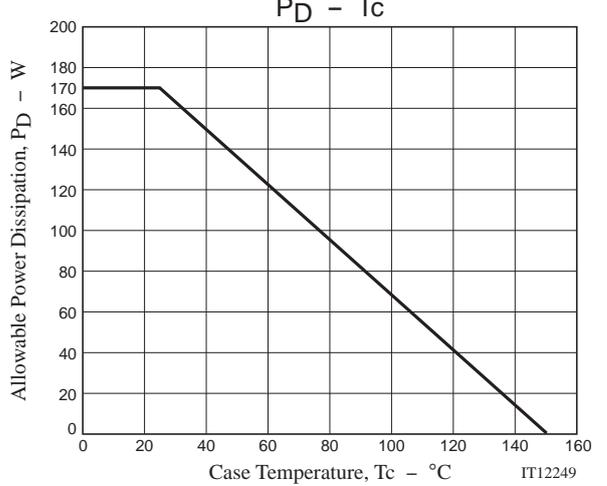
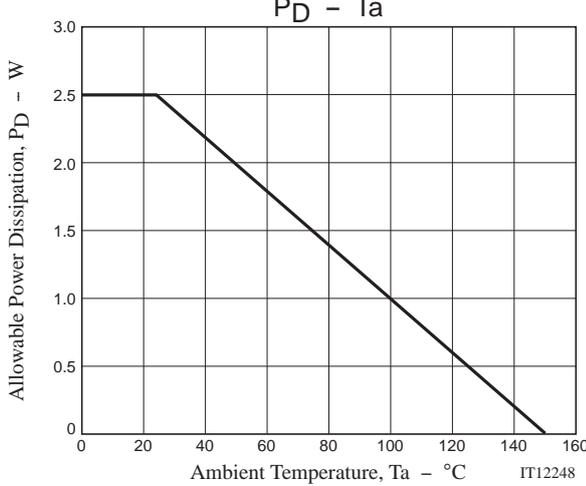
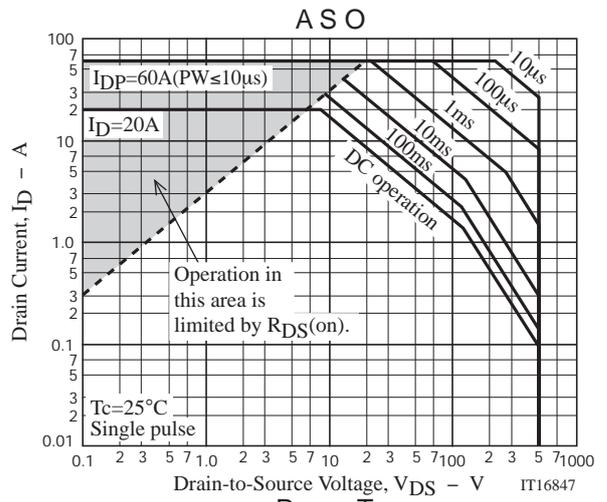
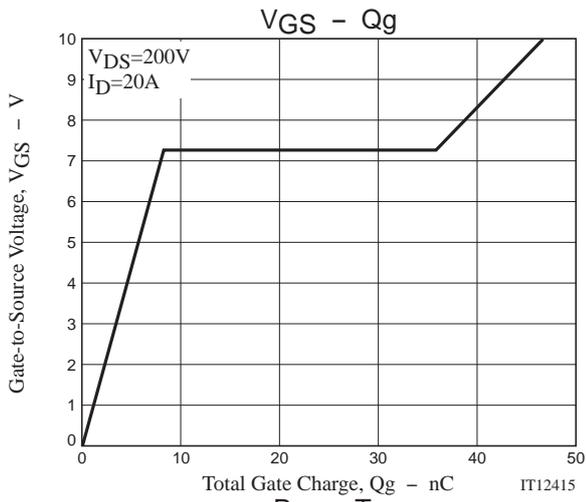
Fig.2 Switching Time Test Circuit



Ordering Information

Device	Package	Shipping	memo
2SK4124-1E	TO-3P-3L	30pcs./magazine	Pb Free





Magazine Specification

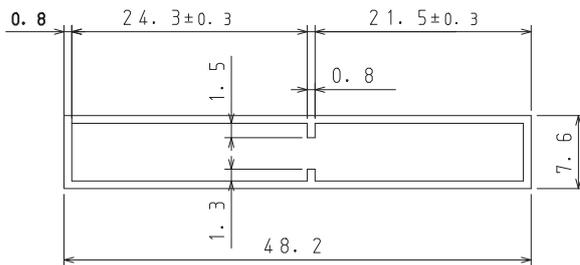
2SK4124-1E

1. Packing Format

Package Name	Maximum Number of devices contained (pcs)			Packing format	
	Magazine	Inner box	Outer box	Inner BOX	Outer BOX
TO-3P-3L	30	450	1800	SPD-0V0001 15 magazines contained Dimensions:mm (external) 568×150×55	SPD-LV0010 4 inner boxes contained Dimensions:mm (external) 590×225×178

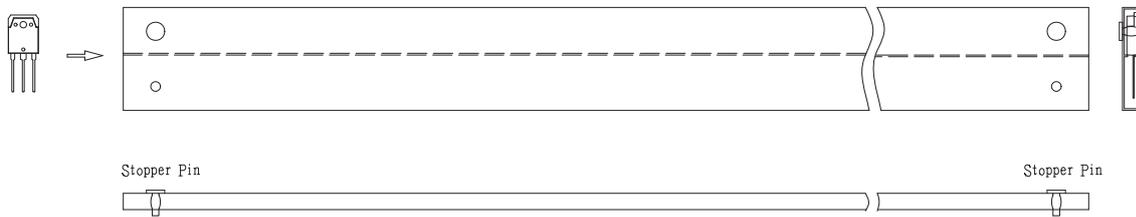
2. Magazine dimensions

(unit:mm)



Tolerance=±0.2mm
 Thickness=0.8±0.2mm
 Length =508.0±1mm
 Material =PVC or PET
 (Antistatic treatment)

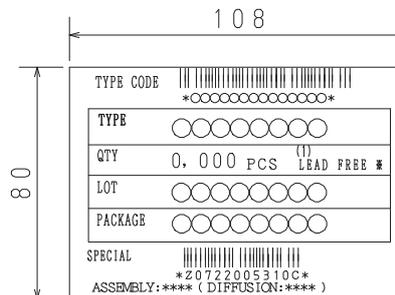
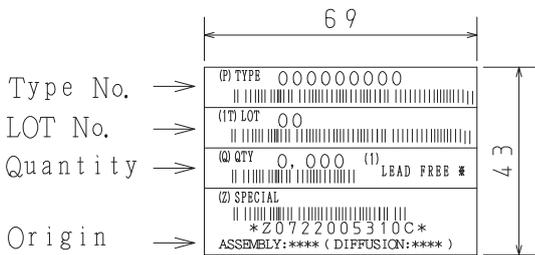
3. Storage method to magazine



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.



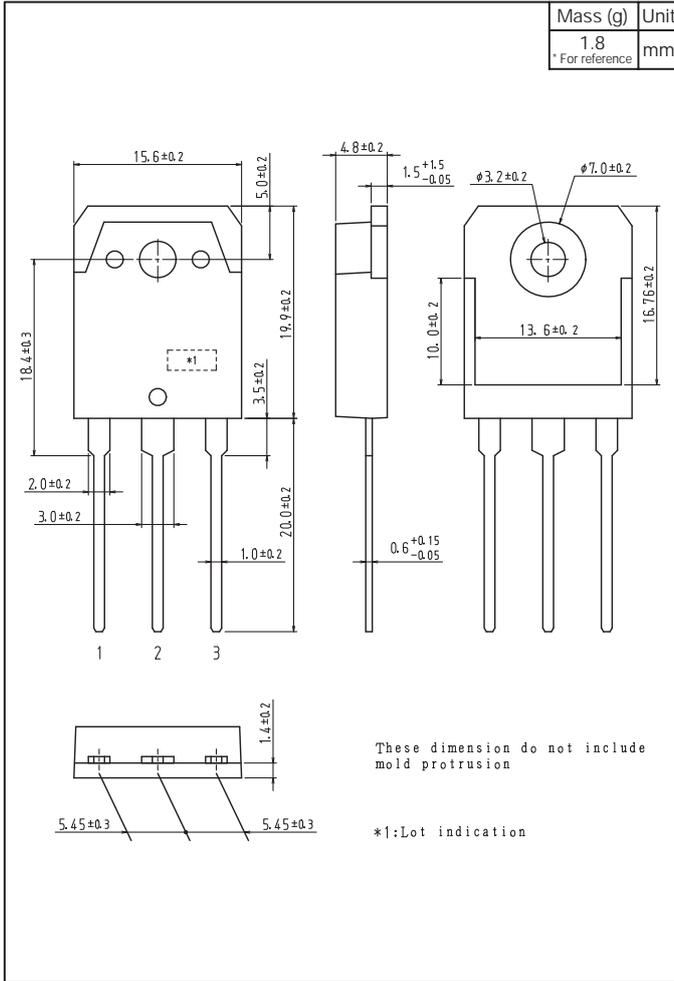
NOTE (1)
 The LEAD FREE * description shows that the surface treatment of the terminal is lead free,

Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A

2SK4124

Outline Drawing

2SK4124-1E



Note on usage : Since the 2SK4124 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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