

SANYO Semiconductors DATA SHEET

2SK3824—General-Purpose Switching Device Applications

Features

- · Low ON-resistance.
- · Ultrahigh-speed switching.
- · 4V drive.
- · Motor drive, DC / DC converter.
- · Avalanche resistance guarantee.

Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	VDSS		60	V
Gate-to-Source Voltage	VGSS		±20	V
Drain Current (DC)	ID		60	Α
Drain Current (Pulse)	IDP	PW≤10μs, duty cycle≤1%	240	Α
Allowable Power Dissipation	D-		1.75	W
	PD	Tc=25°C	60	W
Channel Temperature	Tch		150	°C
Storage Temperature	Tstg		-55 to +150	°C
Avalanche Energy (Single Pulse) *1	EAS		125	mJ
Avalanche Current *2	IAV		60	Α

Note: *1 VDD=20V, L=50µH, IAV=60A

Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	Offic
Drain-to-Source Breakdown Voltage	V(BR)DSS	I _D =1mA, V _{GS} =0	60			V
Zero-Gate Voltage Drain Current	IDSS	VDS=60V, VGS=0			1	μΑ
Gate-to-Source Leakage Current	IGSS	V _{GS} = ±16V, V _{DS} =0			±10	μΑ
Cutoff Voltage	VGS(off)	V _{DS} =10V, I _D =1mA	1.2		2.6	V
Forward Transfer Admittance	yfs	V _{DS} =10V, I _D =30A	24	40		S
Static Drain-to-Source On-State Resistance	R _{DS} (on)1	I _D =30A, V _{GS} =10V		11.5	15	mΩ
	R _{DS} (on)2	I _D =30A, V _{GS} =4V		16	22	mΩ

Marking: K3824 Continued on next page.

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^{*2} L≤50μH, Single pulse

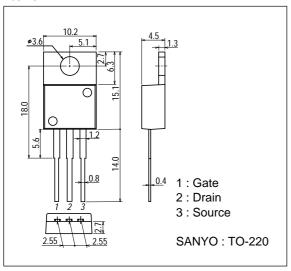
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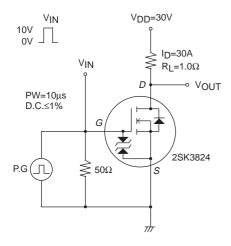
Parameter	Symbol	Conditions		Ratings		
	Symbol		min	typ	max	Unit
Input Capacitance	Ciss	V _{DS} =20V, f=1MHz		3500		pF
Output Capacitance	Coss	V _{DS} =20V, f=1MHz		500		pF
Reverse Transfer Capacitance	Crss	V _{DS} =20V, f=1MHz		350		pF
Turn-ON Delay Time	t _d (on)	See specified Test Circuit.		26		ns
Rise Time	t _r	See specified Test Circuit.		230		ns
Turn-OFF Delay Time	t _d (off)	See specified Test Circuit.		255		ns
Fall Time	tf	See specified Test Circuit.		230		ns
Total Gate Charge	Qg	V _{DS} =30V, V _{GS} =10V, I _D =60A		67		nC
Gate-to-Source Charge	Qgs	VDS=30V, VGS=10V, ID=60A		10.6		nC
Gate-to-Drain "Miller" Charge	Qgd	V _{DS} =30V, V _{GS} =10V, I _D =60A		10		nC
Diode Forward Voltage	V _{SD}	I _S =60A, V _G S=0		1.07	1.5	V

Package Dimensions

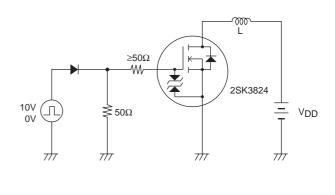
unit : mm 2052C

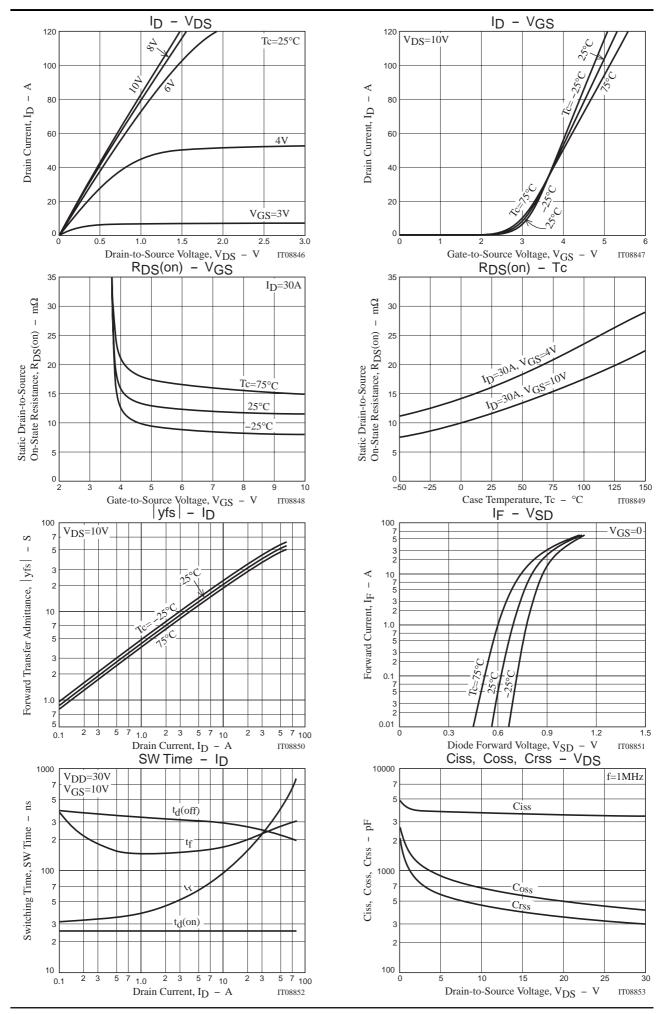


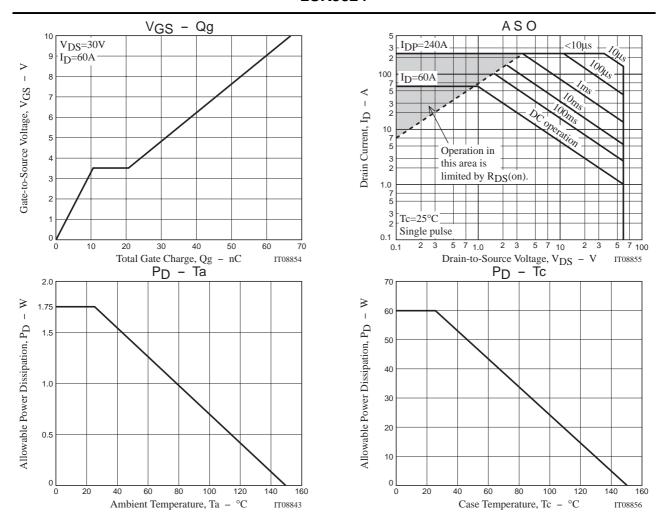
Switching Time Test Circuit



Avalanche Resistance Test Circuit







Note on usage: Since the 2SK3824 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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