



SANYO Semiconductors

DATA SHEET

N-Channel Silicon MOSFET

2SK3823 — 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	V _{DSS}		60		V
Gate-to-Source Voltage	V _{GSS}			±20	V
Drain Current (DC)	I _D		40		A
Drain Current (Pulse)	I _{DP}	PW≤10μs, duty cycle≤1%	160		A
Allowable Power Dissipation	P _D	T _c =25°C	1.75		W
Channel Temperature	T _{ch}		45		W
Storage Temperature	T _{stg}		150		°C
Avalanche Energy (Single Pulse) *1	E _{AS}		-55 to +150		°C
Avalanche Current *2	I _{AV}		56		mJ
			40		A

Note : *1 V_{DD}=20V, L=50μH, I_{AV}=40A

*2 L≤50μH, 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} =0	60			V
Zero-Gate Voltage Drain Current	I _{DSS}	V _D =60V, V _{GS} =0			1	μA
Gate-to-Source Leakage Current	I _{GSS}	V _{GS} =±16V, V _D =0			±10	μA
Cutoff Voltage	V _{GS(off)}	V _D =10V, I _D =1mA	1.2		2.6	V
Forward Transfer Admittance	y _{fs}	V _D =10V, I _D =20A	16	28		S
Static Drain-to-Source On-State Resistance	R _{D(on)1}	I _D =20A, V _{GS} =10V		21	27.5	mΩ
	R _{D(on)2}	I _D =20A, V _{GS} =4V		29	41	mΩ

Marking : K3823

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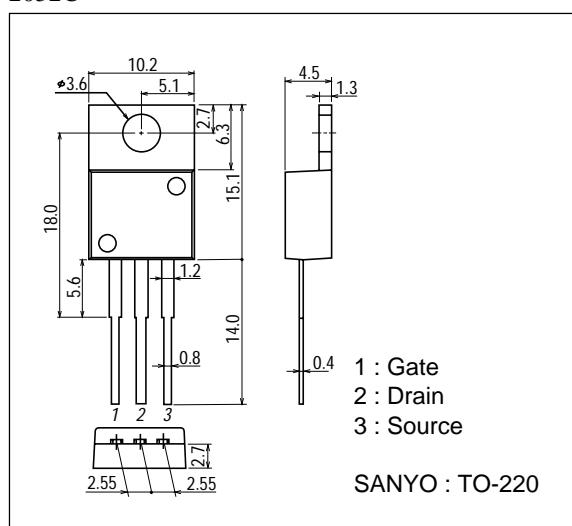
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	C_{iss}	$V_{DS}=20V, f=1MHz$		1780		pF
Output Capacitance	C_{oss}	$V_{DS}=20V, f=1MHz$		266		pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS}=20V, f=1MHz$		197		pF
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		16.5		ns
Rise Time	t_r	See specified Test Circuit.		160		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit.		160		ns
Fall Time	t_f	See specified Test Circuit.		160		ns
Total Gate Charge	Q_g	$V_{DS}=30V, V_{GS}=10V, I_D=40A$		40		nC
Gate-to-Source Charge	Q_{gs}	$V_{DS}=30V, V_{GS}=10V, I_D=40A$		6.5		nC
Gate-to-Drain "Miller" Charge	Q_{gd}	$V_{DS}=30V, V_{GS}=10V, I_D=40A$		11.5		nC
Diode Forward Voltage	V_{SD}	$I_S=40A, V_{GS}=0$		1.08	1.5	V

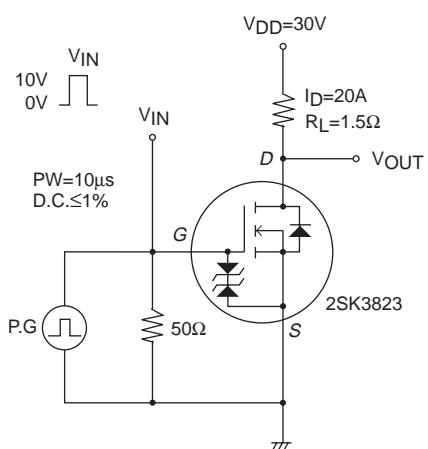
Package Dimensions

unit : mm

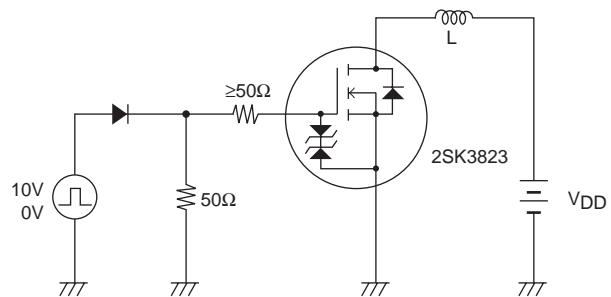
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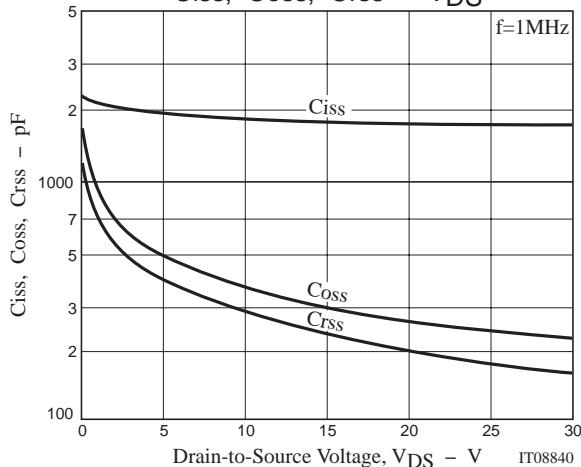
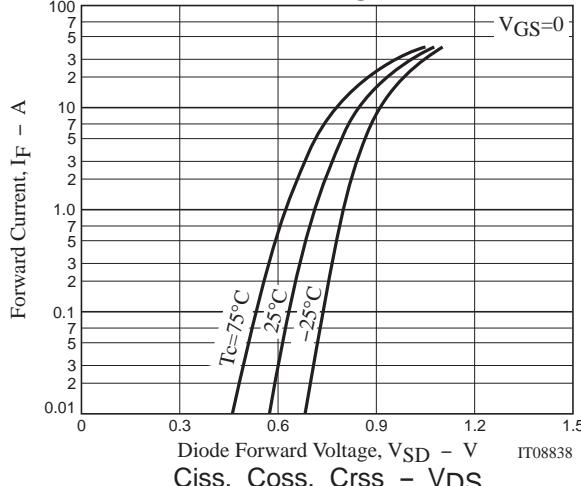
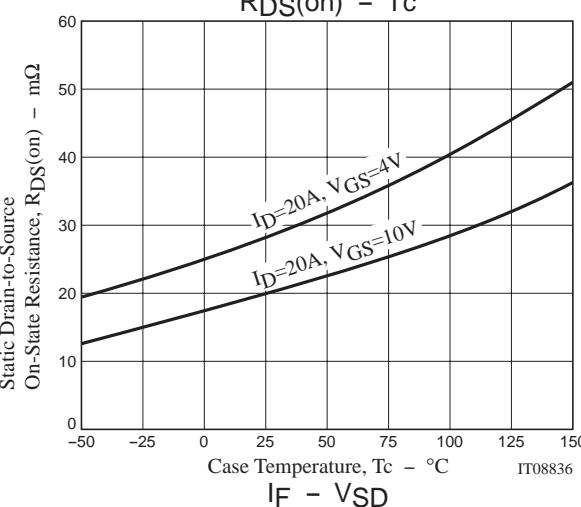
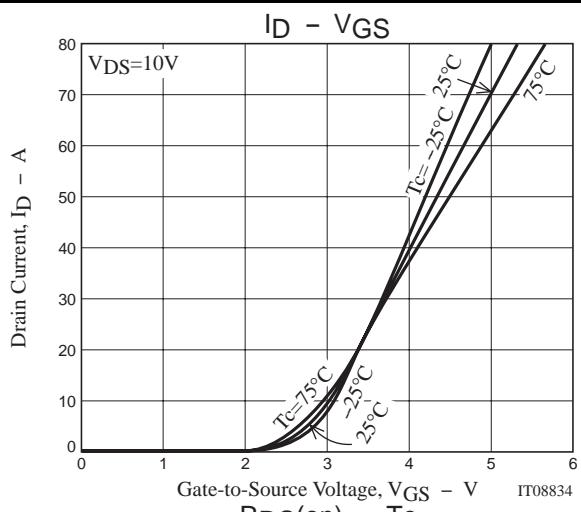
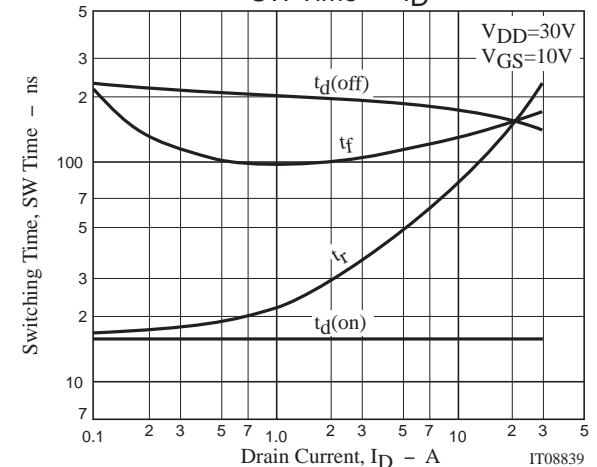
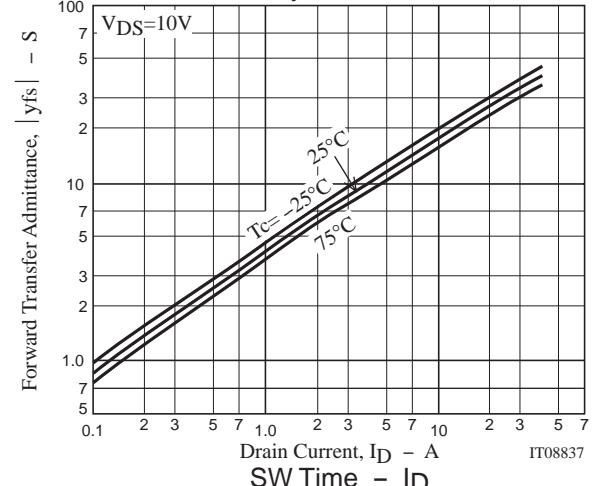
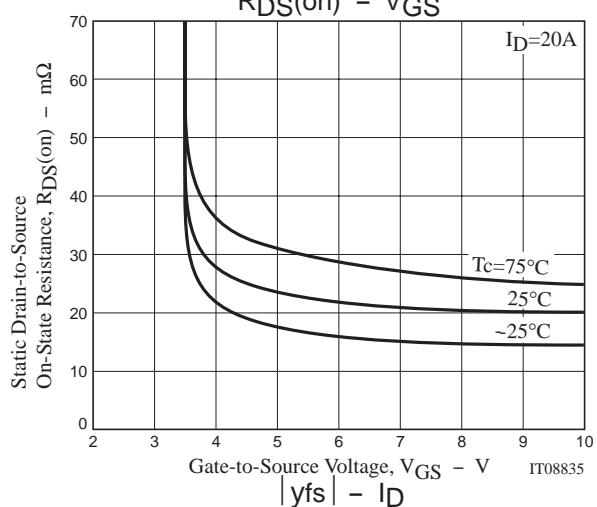
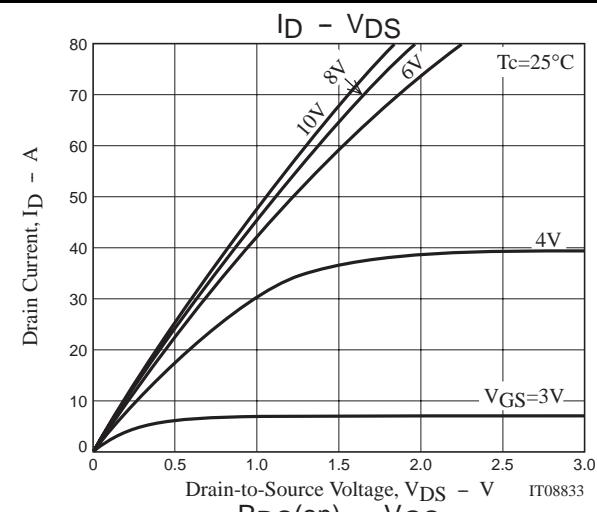


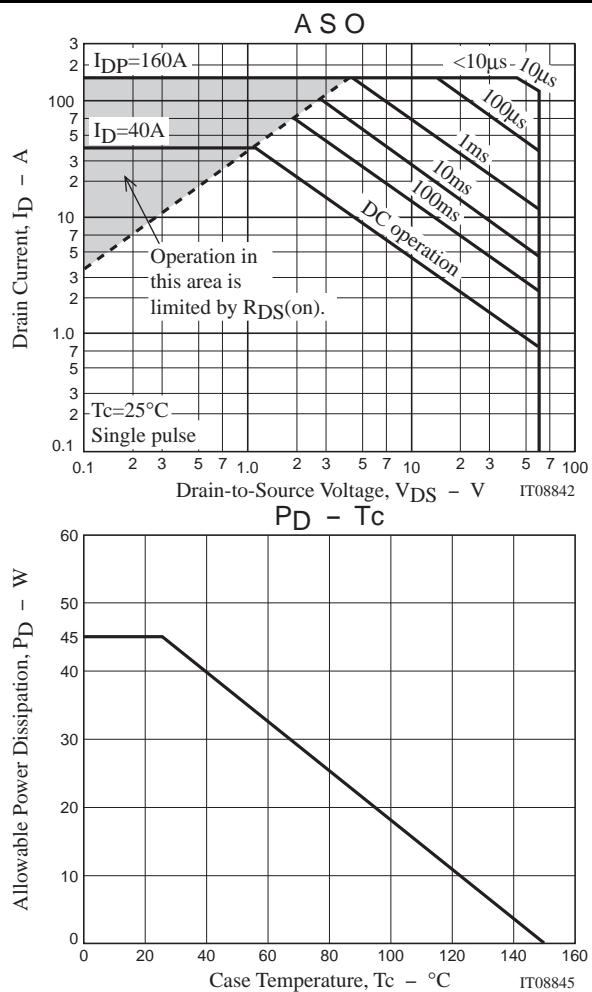
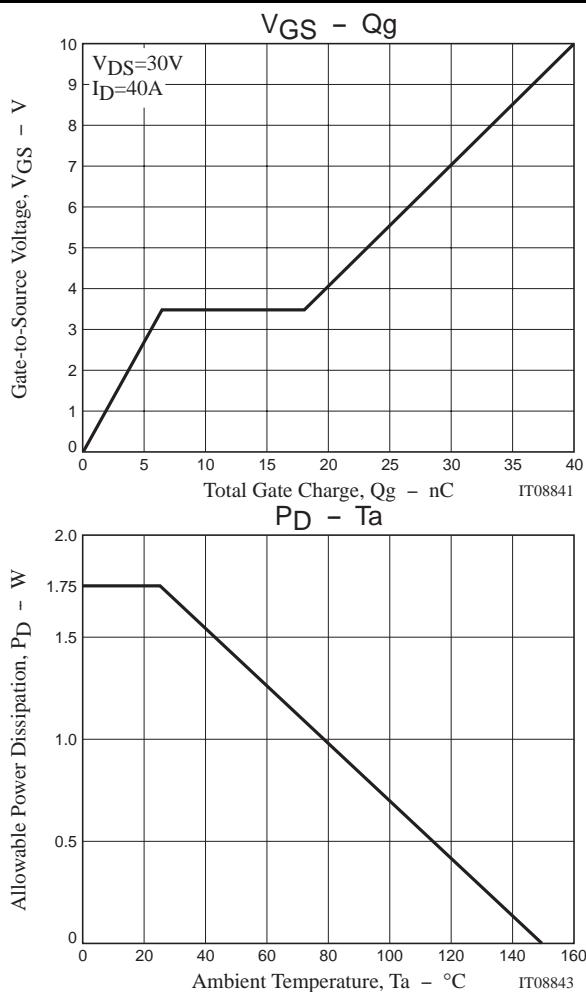
Switching Time Test Circuit



Avalanche Resistance Test Circuit







Note on usage : Since the 2SK3823 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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