



ON Semiconductor®

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DATA SHEET

2SK3827

N-Channel Silicon MOSFET

General-Purpose Switching Device Applications

Features

- Low ON-resistance.
- 4V drive.
- Ultrahigh-speed switching.
- 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}		100	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		1.75	W
		Tc=25°C	60	W
Channel Temperature	T _{ch}		150	°C
Storage Temperature	T _{stg}		-55 to +150	°C
Avalanche Energy (Single Pulse) *1	E _{AS}		190	mJ
Avalanche Current *2	I _{AV}		40	A

Note : *1 V_{DD}=20V, L=200μH, I_{AV}=40A

*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} =0	100			V
Zero-Gate Voltage Drain Current	I _{DSS}	V _{DS} =100V, V _{GS} =0			1	μA
Gate-to-Source Leakage Current	I _{GSS}	V _{GS} = ±16V, V _{DS} =0			±10	μA
Cutoff Voltage	V _{GS(off)}	V _{DS} =10V, I _D =1mA	1.2		2.6	V
Forward Transfer Admittance	y _{fs}	V _{DS} =10V, I _D =20A	18.5	31		S
Static Drain-to-Source On-State Resistance	R _{DS(on)1}	I _D =20A, V _{GS} =10V		26	34	mΩ
	R _{DS(on)2}	I _D =20A, V _{GS} =4V		31	43	mΩ

Marking : K3827

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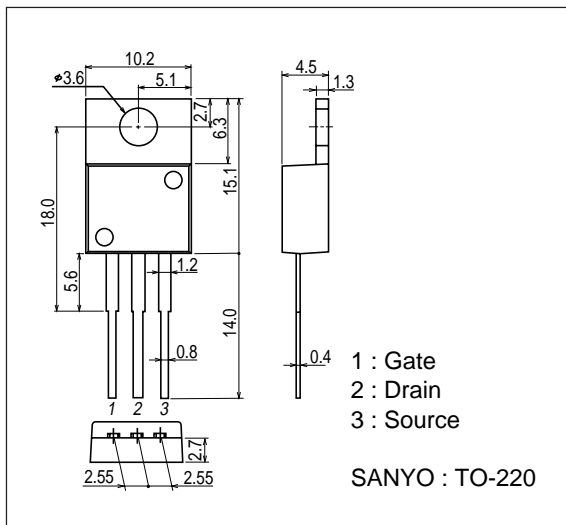
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	C_{iss}	$V_{DS}=20V, f=1MHz$		4200		pF
Output Capacitance	C_{oss}	$V_{DS}=20V, f=1MHz$		300		pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS}=20V, f=1MHz$		250		pF
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		30		ns
Rise Time	t_r	See specified Test Circuit.		68		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit.		300		ns
Fall Time	t_f	See specified Test Circuit.		110		ns
Total Gate Charge	Q_g	$V_{DS}=50V, V_{GS}=10V, I_D=40A$		79		nC
Gate-to-Source Charge	Q_{gs}	$V_{DS}=50V, V_{GS}=10V, I_D=40A$		14		nC
Gate-to-Drain "Miller" Charge	Q_{gd}	$V_{DS}=50V, V_{GS}=10V, I_D=40A$		18		nC
Diode Forward Voltage	V_{SD}	$I_S=40A, V_{GS}=0$		1.0	1.2	V

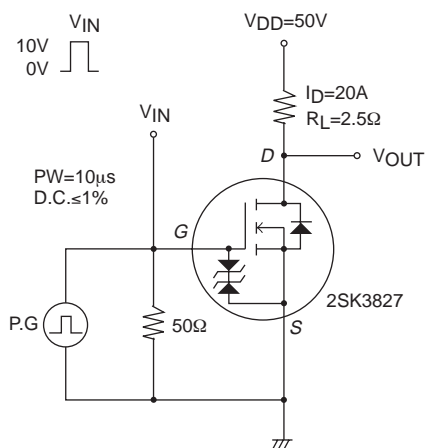
Package Dimensions

unit : mm

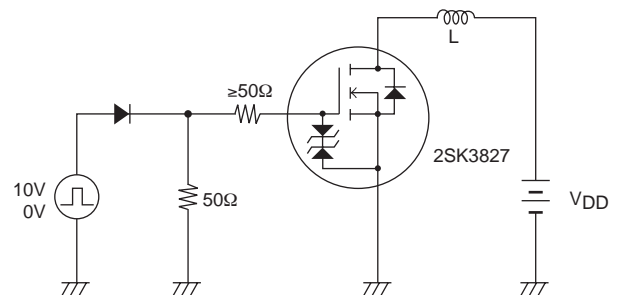
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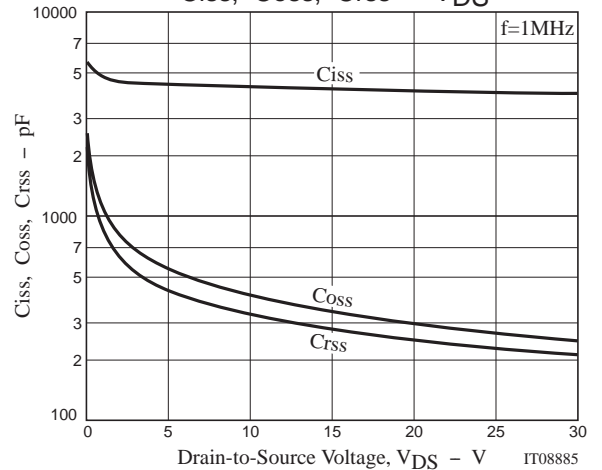
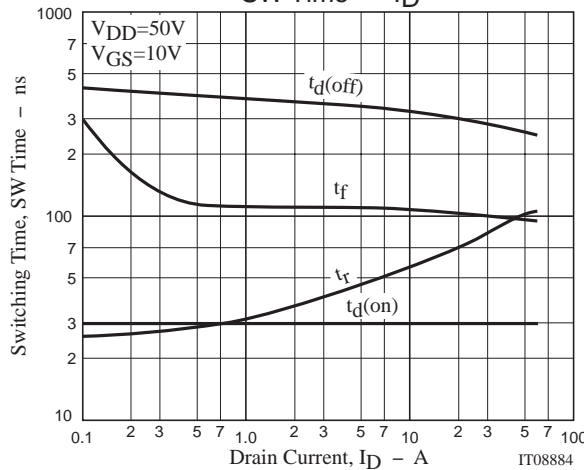
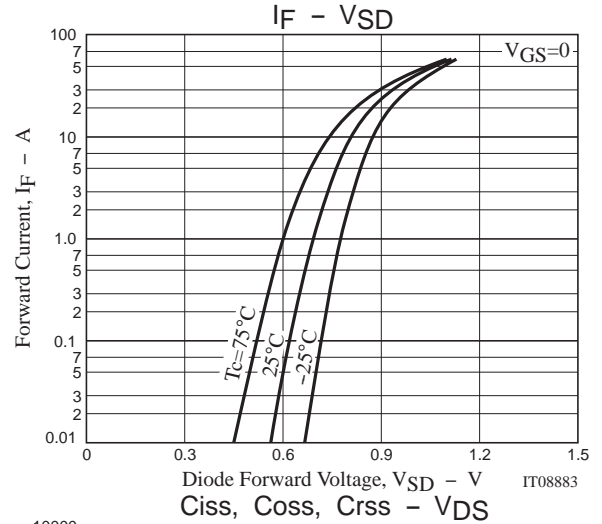
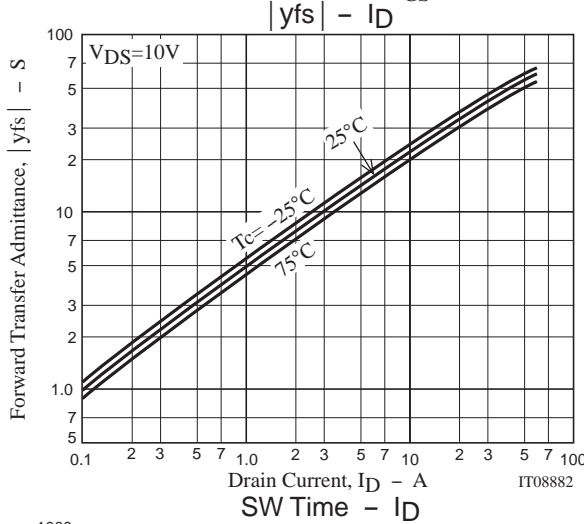
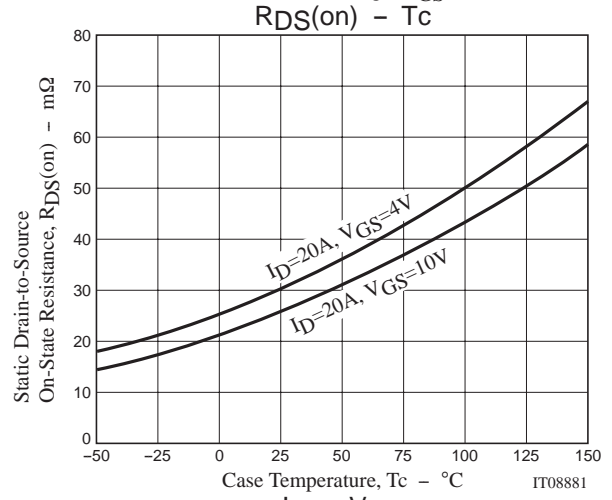
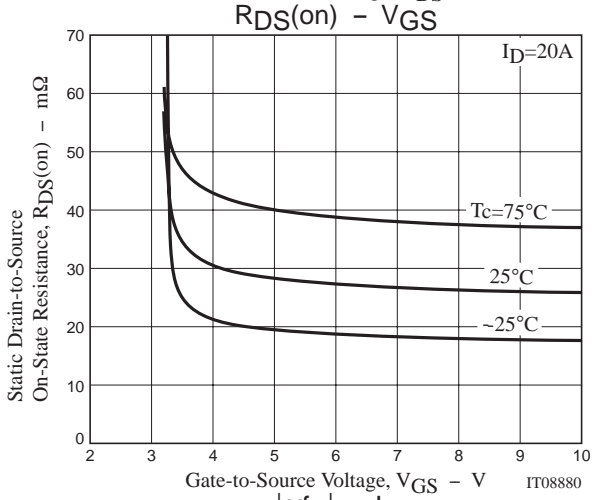
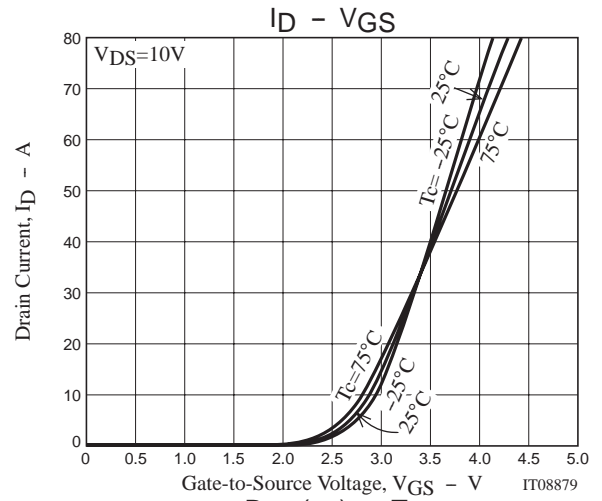
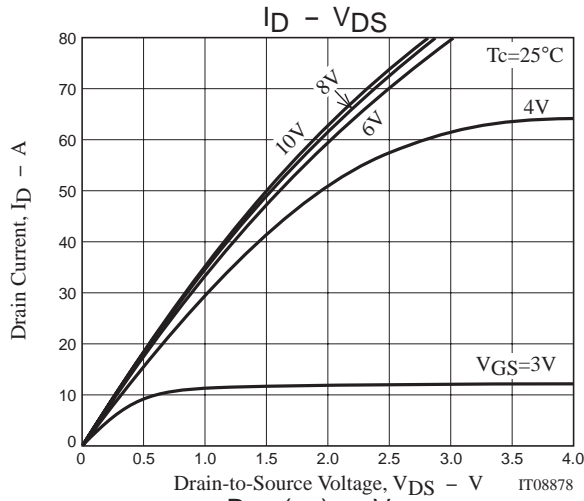


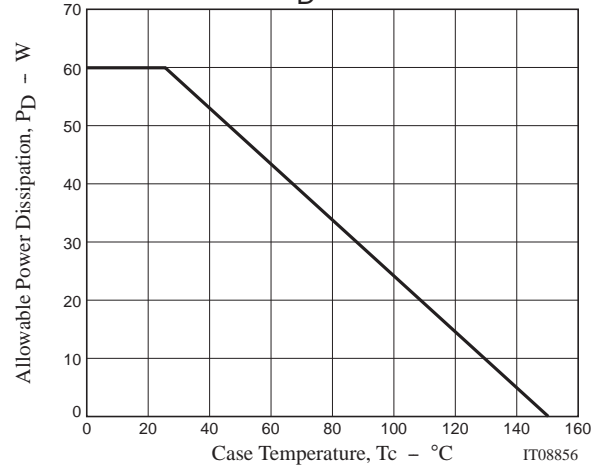
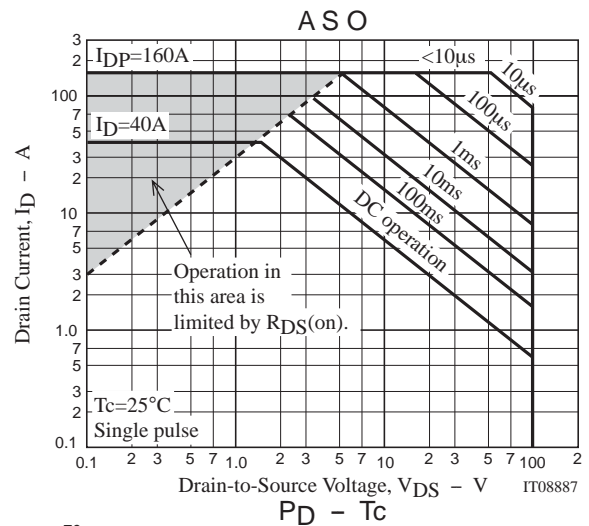
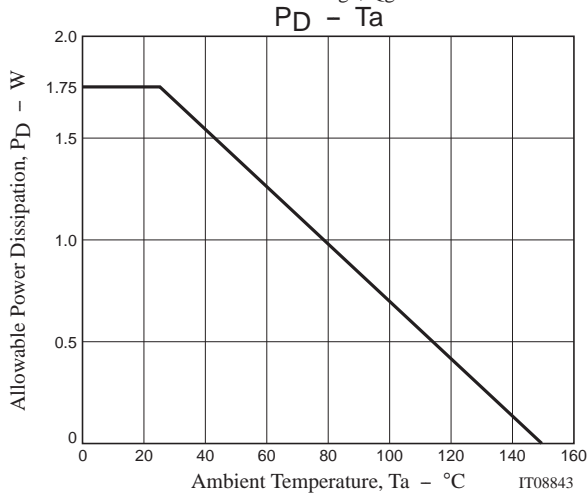
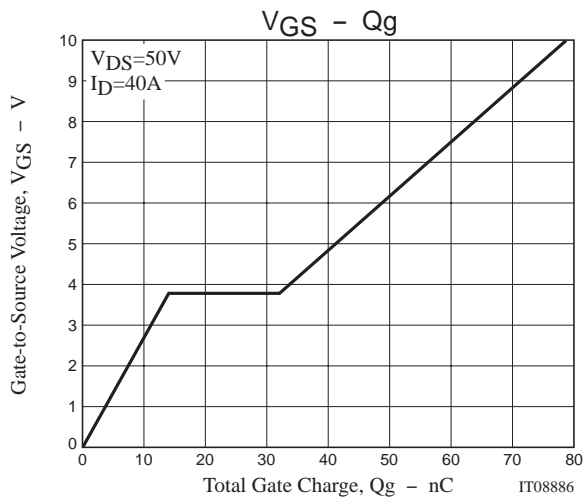
Switching Time Test Circuit



Avalanche Resistance Test Circuit







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