

SANYO Semiconductors DATA SHEET

N-Channel Silicon MOSFET

2SK4177— 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 Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	VDSS	Containone	1500	V
Gate-to-Source Voltage	VGSS		±20	V
Drain Current (DC)	ID		2	А
Drain Current (Pulse)	IDP	PW≤10μs, duty cycle≤1%	4	Α
Allowable Power Dissipation			1.65	W
	PD	Tc=25°C	80	W
Channel Temperature	Tch		150	°C
Storage Temperature	Tstg		-55 to +150	°C
Avalanche Energy (Single Pulse) *1	EAS		42	mJ
Avalanche Current *2	IAV		2	А

^{*1} VDD=99V, L=20mH, IAV=2A

Marking: K4177

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^{*2} L≤20mH, single pulse

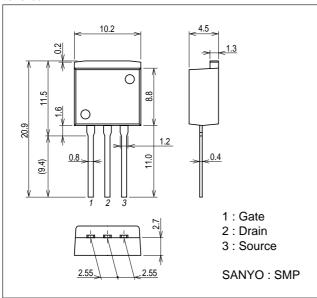
Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	Offic
Drain-to-Source Breakdown Voltage	V(BR)DSS	ID=1mA, VGS=0V	1500			V
Zero-Gate Voltage Drain Current	IDSS	V _{DS} =1200V, V _{GS} =0V			100	μΑ
Gate-to-Source Leakage Current	IGSS	V _{GS} =±16V, V _{DS} =0V			±10	μΑ
Cutoff Voltage	VGS(off)	VDS=10V, ID=1mA	2.5		3.5	V
Forward Transfer Admittance	yfs	V _{DS} =20V, I _D =1A	0.7	1.4		S
Static Drain-to-Source On-State Resistance	R _{DS} (on)	I _D =1A, V _G S=10V		10	13	Ω
Input Capacitance	Ciss	V _{DS} =30V, f=1MHz		380		pF
Output Capacitance	Coss	V _{DS} =30V, f=1MHz		70		pF
Reverse Transfer Capacitance	Crss	V _{DS} =30V, f=1MHz		40		pF
Turn-ON Delay Time	t _d (on)	See specified Test Circuit.		12		ns
Rise Time	t _r	See specified Test Circuit.		37		ns
Turn-OFF Delay Time	t _d (off)	See specified Test Circuit.		152		ns
Fall Time	tf	See specified Test Circuit.		59		ns
Total Gate Charge	Qg	V _{DS} =200V, V _{GS} =10V, I _D =2A		37.5		nC
Gate-to-Source Charge	Qgs	V _{DS} =200V, V _{GS} =10V, I _D =2A		2.7		nC
Gate-to-Drain "Miller" Charge	Qgd	V _{DS} =200V, V _{GS} =10V, I _D =2A		20		nC
Diode Forward Voltage	V _{SD}	I _S =2A, V _{GS} =0V		0.88	1.2	V

Note) Although the protection diode is contained between gate and source, be careful of handling enough.

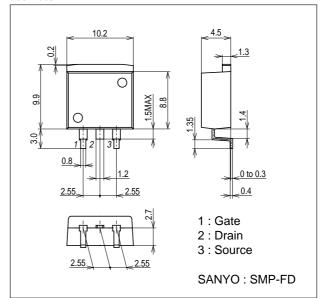
Package Dimensions

unit : mm (typ) 7513-002

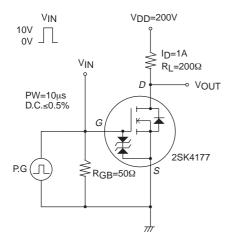


Package Dimensions

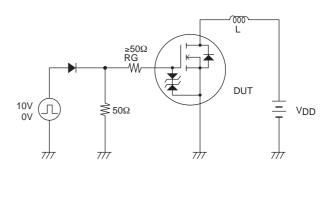
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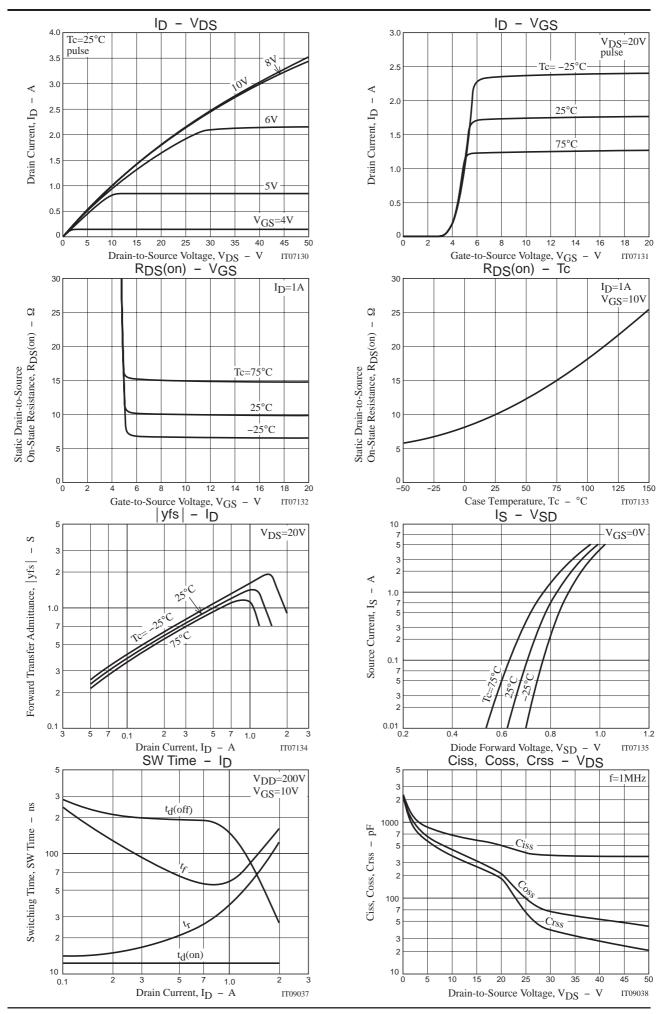


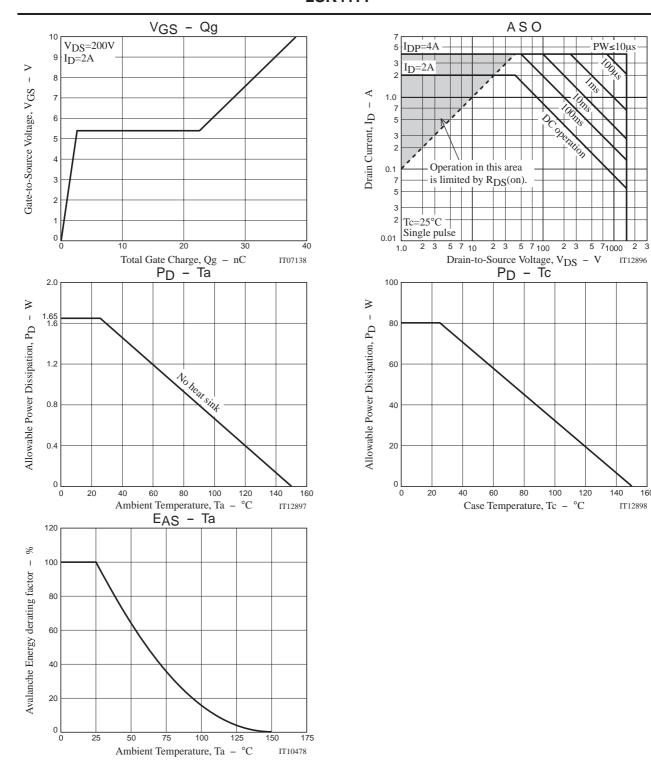
Switching Time Test Circuit



Avalanche Resistance Test Circuit







PW≤10μs

160

IT12898

140

Note on usage: Since the 2SK4177 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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