



SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

N-Channel Silicon MOSFET

2SK4126 — 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	V _{DSS}		650	V
Gate-to-Source Voltage	V _{GSS}		±30	V
Drain Current (DC)	I _D		15	A
Drain Current (Pulse)	I _{DP}	PW≤10μs, duty cycle≤1%	48	A
Allowable Power Dissipation	P _D	T _c =25°C (SANYO's ideal heat dissipation condition)*1	2.5	W
			170	W
Channel Temperature	T _{ch}		150	°C
Storage Temperature	T _{stg}		-55 to +150	°C
Avalanche Energy (Single Pulse) *2	E _{AS}		132	mJ
Avalanche Current *3	I _{AV}		15	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}=99V, L=1mH, I_{AV}=15A

*3 L≤1mH, single pulse

Marking : K4126

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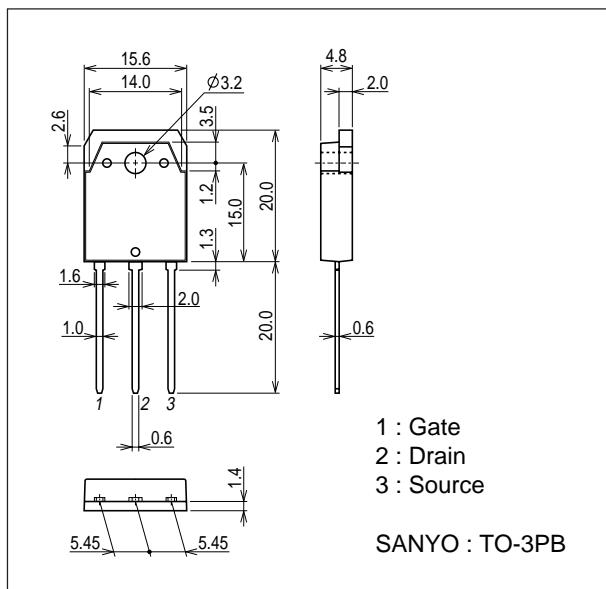
Electrical Characteristics at $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V(\text{BR})_{\text{DSS}}$	$I_D=10\text{mA}, V_{GS}=0\text{V}$	650			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS}=520\text{V}, V_{GS}=0\text{V}$			100	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 30\text{V}, V_{DS}=0\text{V}$			± 100	nA
Cutoff Voltage	$V_{GS(\text{off})}$	$V_{DS}=10\text{V}, I_D=1\text{mA}$	3		5	V
Forward Transfer Admittance	$ y_{\text{fs}} $	$V_{DS}=10\text{V}, I_D=7.5\text{A}$	4.1	8.2		S
Static Drain-to-Source On-State Resistance	$R_{DS(\text{on})}$	$I_D=6\text{A}, V_{GS}=10\text{V}$		0.55	0.72	Ω
Input Capacitance	C_{iss}	$V_{DS}=30\text{V}, f=1\text{MHz}$		1200		pF
Output Capacitance	C_{oss}	$V_{DS}=30\text{V}, f=1\text{MHz}$		208		pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS}=30\text{V}, f=1\text{MHz}$		44		pF
Turn-ON Delay Time	$t_{\text{d}(\text{on})}$	See specified Test Circuit.		27		ns
Rise Time	t_r	See specified Test Circuit.		80		ns
Turn-OFF Delay Time	$t_{\text{d}(\text{off})}$	See specified Test Circuit.		45		ns
Fall Time	t_f	See specified Test Circuit.		50		ns
Total Gate Charge	Q_g	$V_{DS}=200\text{V}, V_{GS}=10\text{V}, I_D=15\text{A}$		45.4		nC
Gate-to-Source Charge	Q_{gs}	$V_{DS}=200\text{V}, V_{GS}=10\text{V}, I_D=15\text{A}$		8.3		nC
Gate-to-Drain "Miller" Charge	Q_{gd}	$V_{DS}=200\text{V}, V_{GS}=10\text{V}, I_D=15\text{A}$		25.8		nC
Diode Forward Voltage	V_{SD}	$I_S=15\text{A}, V_{GS}=0\text{V}$		0.95	1.3	V

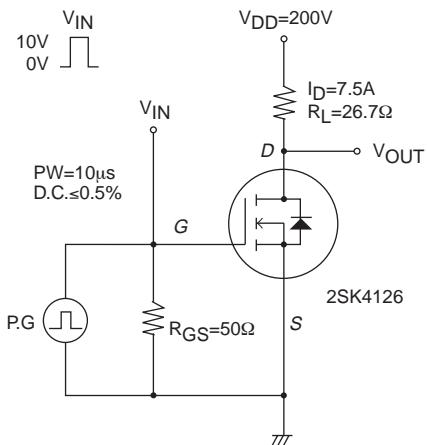
Package Dimensions

unit : mm (typ)

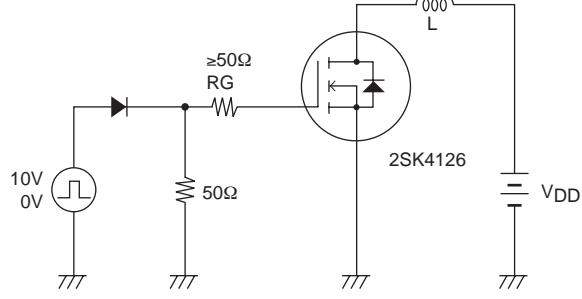
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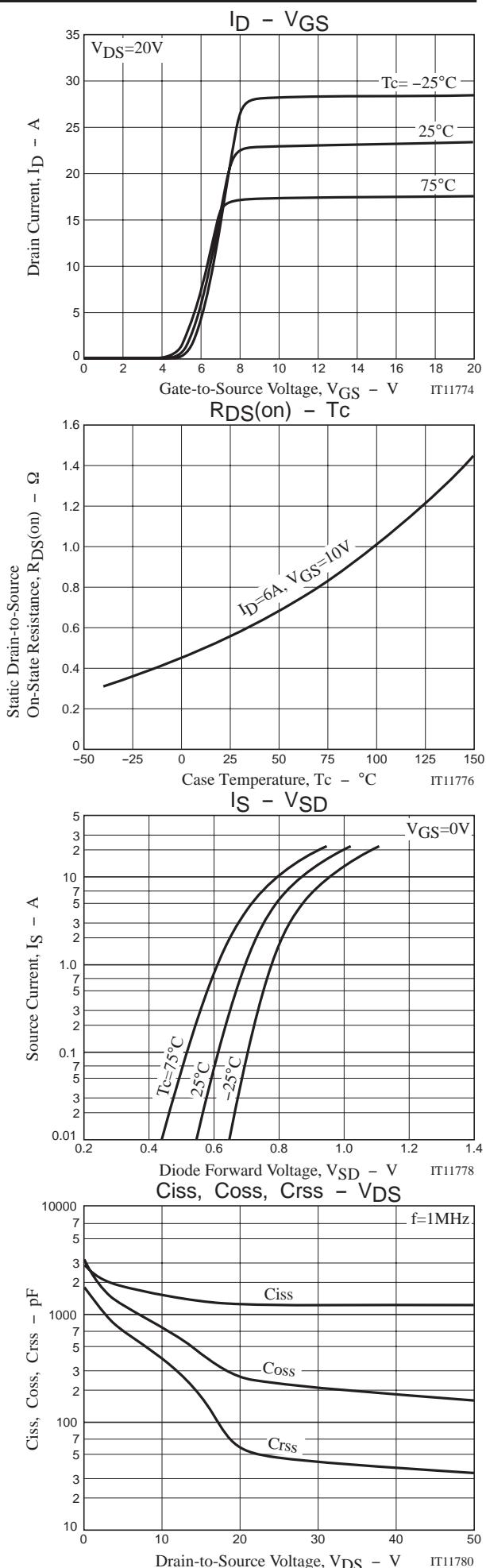
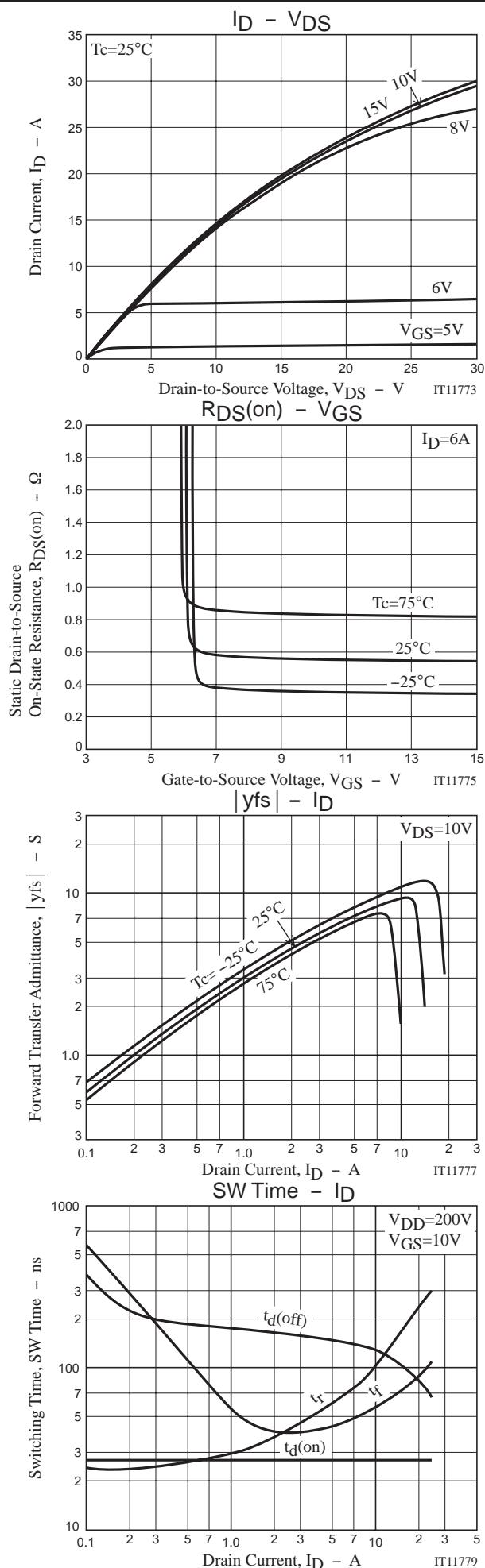


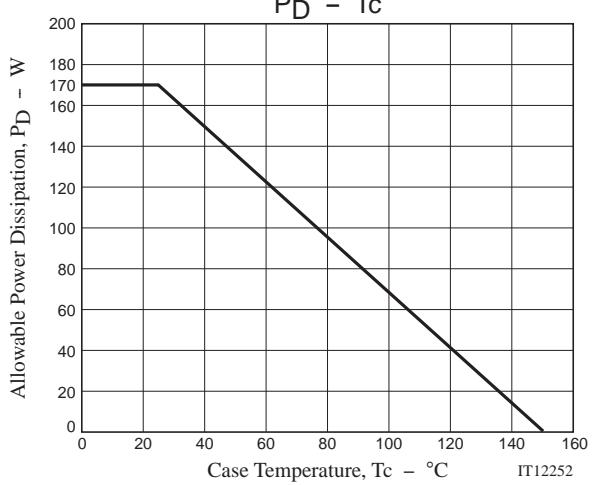
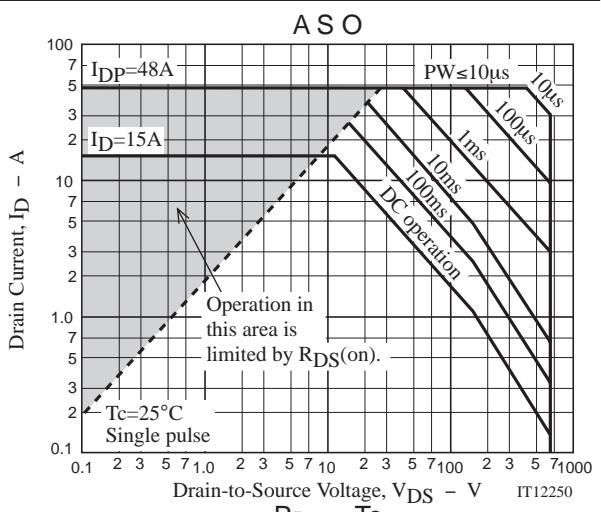
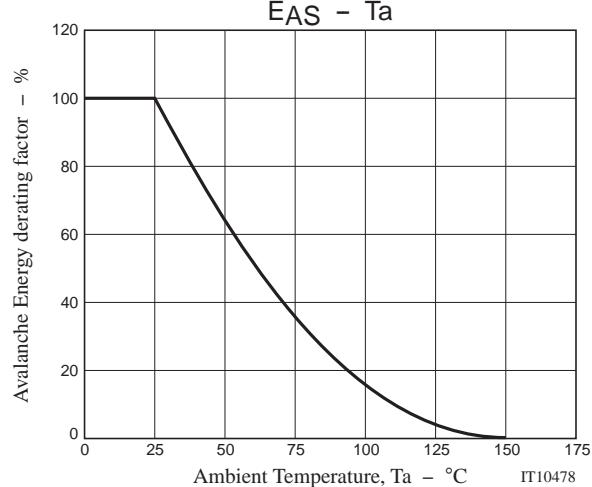
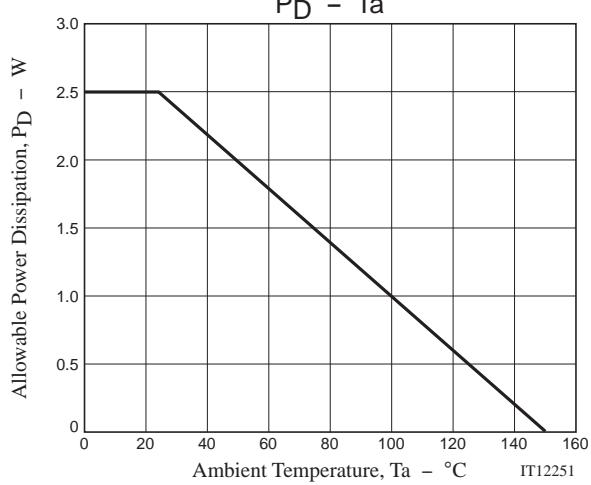
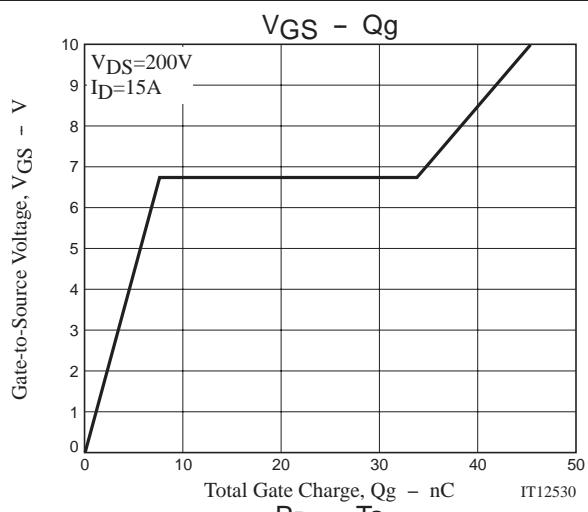
Switching Time Test Circuit



Avalanche Resistance Test Circuit







Note on usage : Since the 2SK4126 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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