



SANYO Semiconductors

# DATA SHEET

An ON Semiconductor Company

## 2SK4126 — N-Channel Silicon MOSFET 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  $T_a=25^{\circ}\text{C}$ 

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	$V_{DS}$		650	V
Gate-to-Source Voltage	$V_{GS}$		$\pm 30$	V
Drain Current (DC)	$I_D$		15	A
Drain Current (Pulse)	$I_{DP}$	$PW \leq 10\mu\text{s}$ , duty cycle $\leq 1\%$	48	A
Allowable Power Dissipation	$P_D$		2.5	W
		$T_c=25^{\circ}\text{C}$ (SANYO's ideal heat dissipation condition)*1	170	W
Channel Temperature	$T_{ch}$		150	$^{\circ}\text{C}$
Storage Temperature	$T_{stg}$		-55 to +150	$^{\circ}\text{C}$
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  $V_{DD}=99\text{V}$ ,  $L=1\text{mH}$ ,  $I_{AV}=15\text{A}$ \*3  $L \leq 1\text{mH}$ , single pulse

Marking : K4126

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## 2SK4126

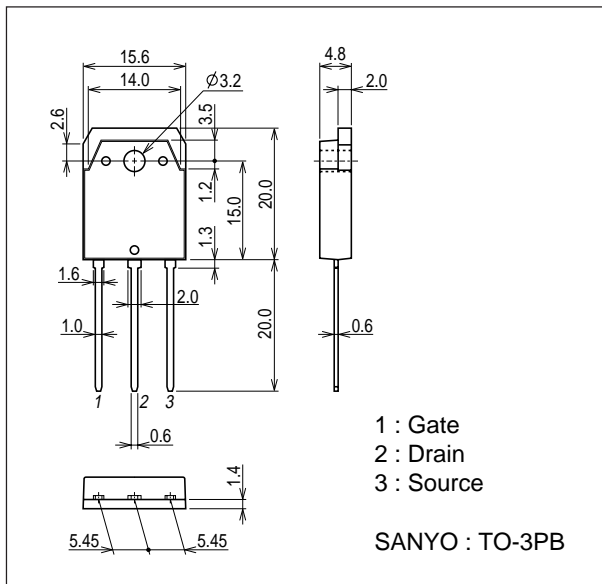
### Electrical Characteristics at Ta=25°C

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

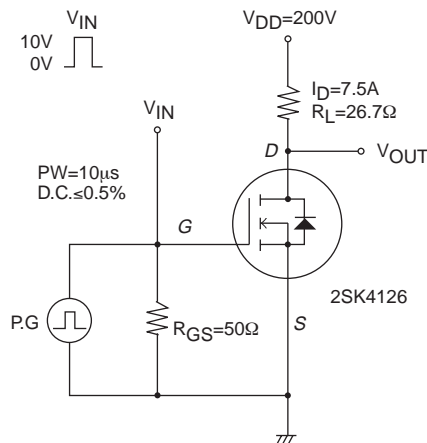
### Package Dimensions

unit : mm (typ)

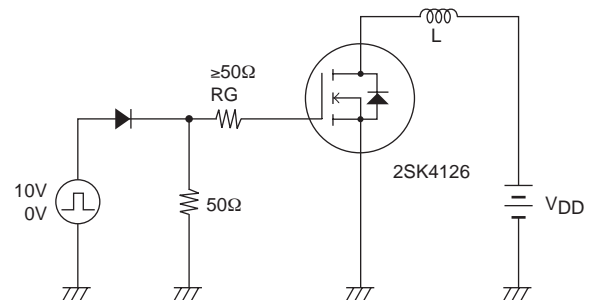
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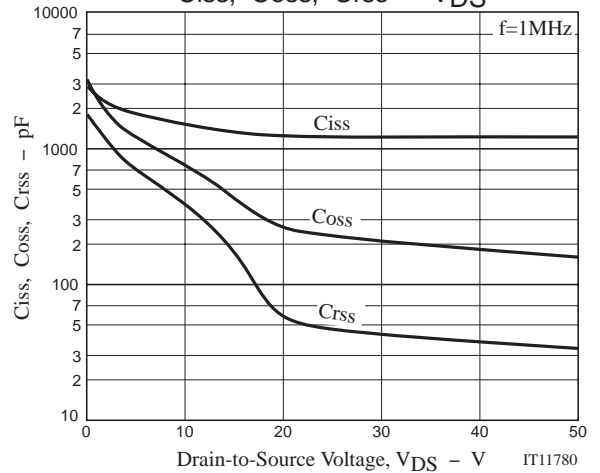
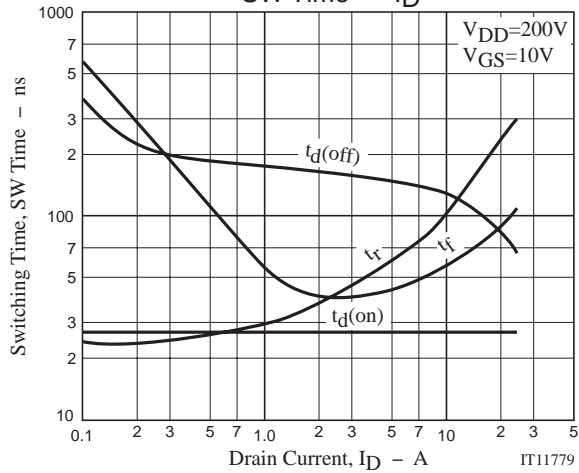
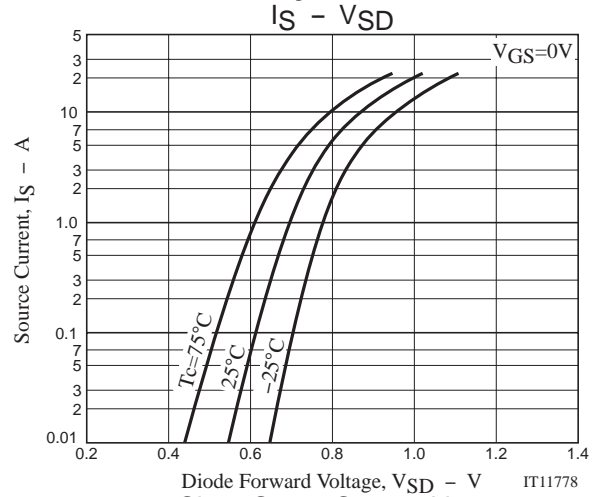
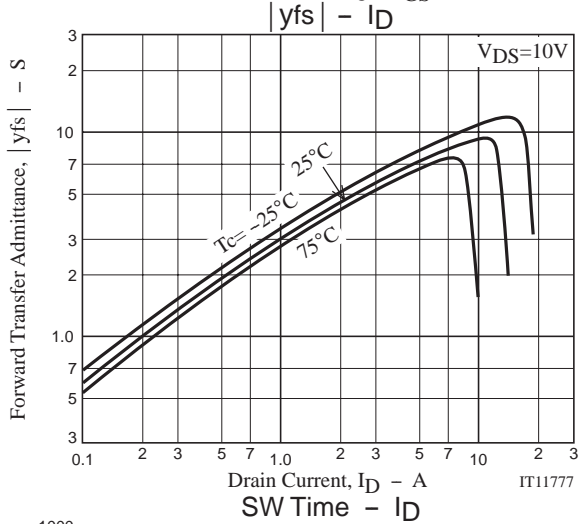
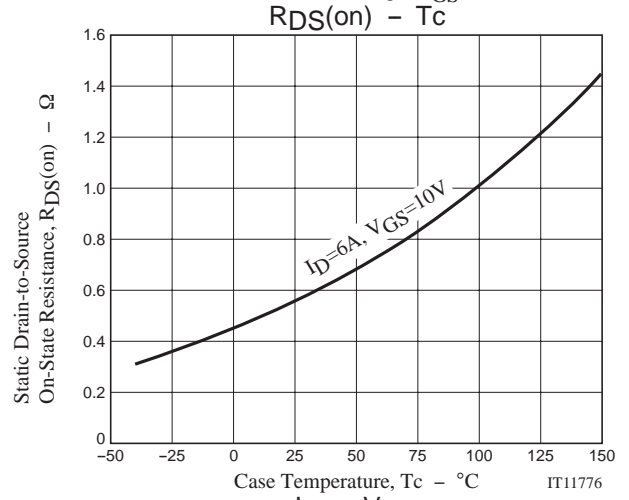
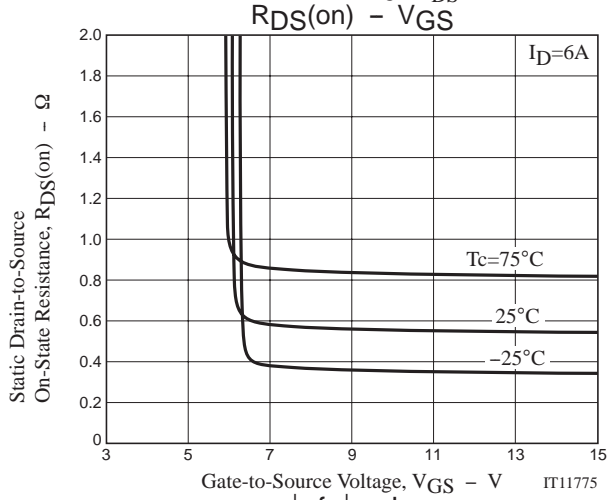
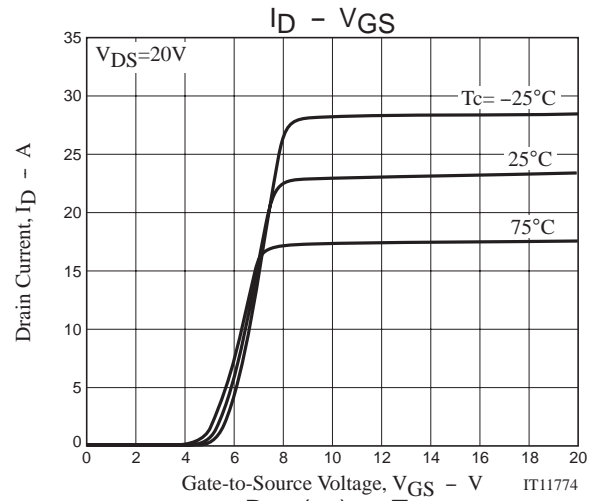
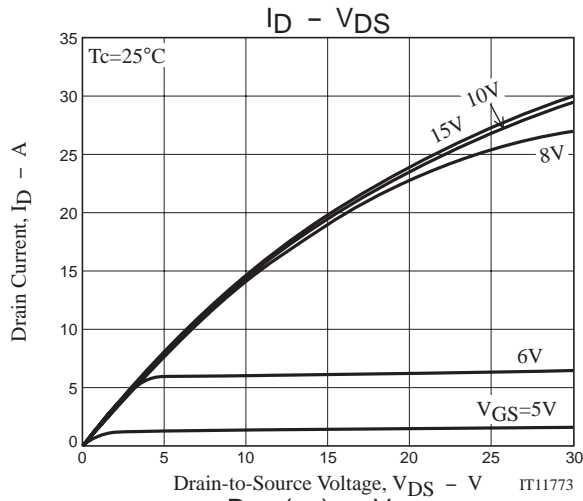


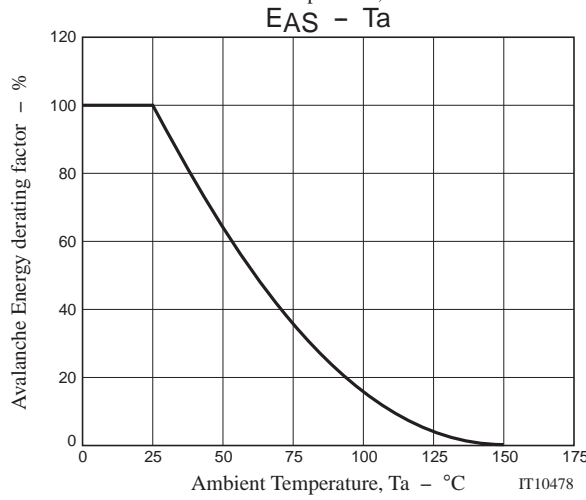
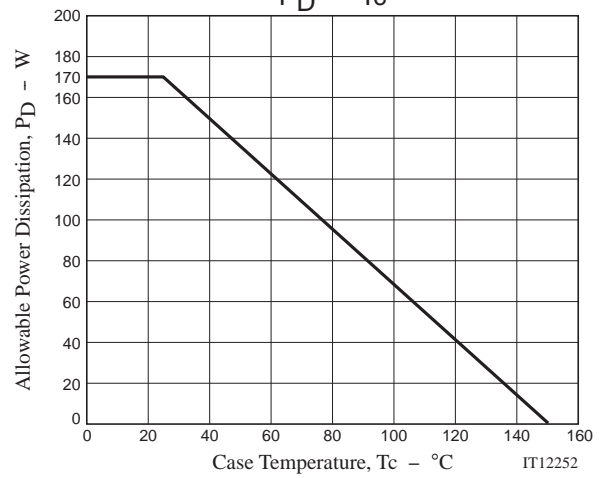
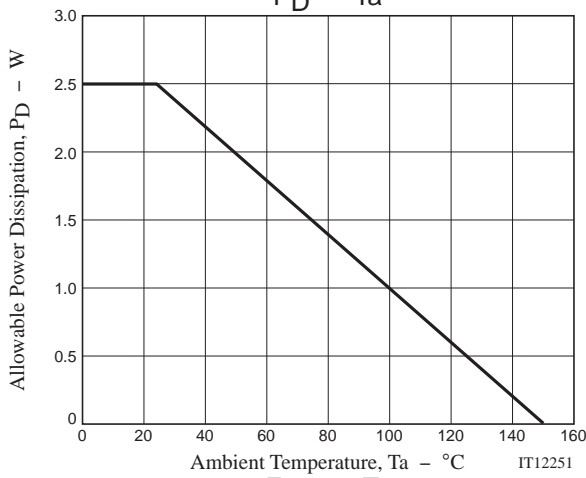
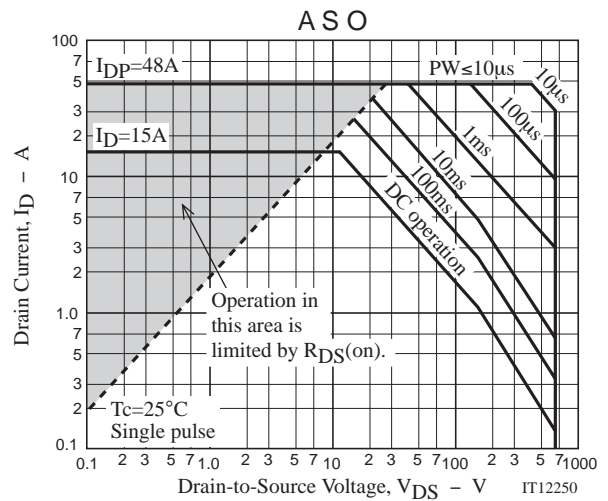
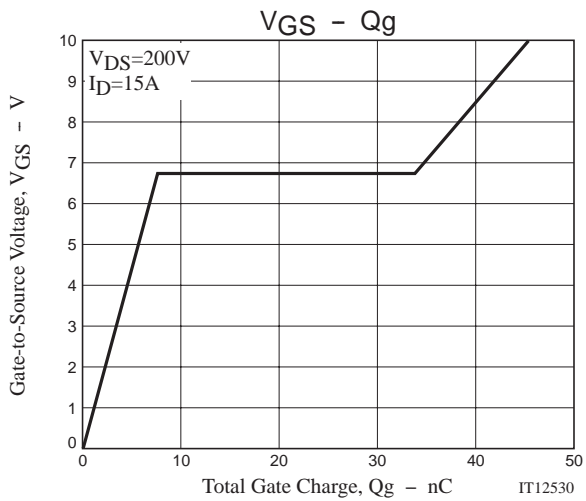
### Switching Time Test Circuit



### 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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