



SANYO Semiconductors

## DATA SHEET

# 2SK4179GS — N-Channel Silicon MOSFET

## General-Purpose Switching Device

### Applications

#### Features

- Low ON-resistance.
- Motor drive.
- Avalanche resistance guarantee.
- 10V drive.

#### Specifications

Absolute Maximum Ratings at  $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	$V_{DSS}$		75	V
Gate-to-Source Voltage	$V_{GSS}$		$\pm 20$	V
Drain Current (DC)	$I_D$		80	A
Drain Current (Pulse)	$I_{DP}$	$PW \leq 10\mu\text{s}$ , duty cycle $\leq 1\%$	320	A
Allowable Power Dissipation	$P_D$		1.75	W
		$T_c=25^\circ\text{C}$	70	W
Channel Temperature	$T_{ch}$		150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$		-55 to +150	$^\circ\text{C}$
Avalanche Energy (Single Pulse) *1	$E_{AS}$		100	mJ
Avalanche Current *2	$I_{AV}$		48	A

Note : \*1  $V_{DD}=30\text{V}$ ,  $L=50\mu\text{H}$ ,  $I_{AV}=48\text{A}$

\*2  $L \leq 50\mu\text{H}$ , Single pulse

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

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=1\text{mA}$ , $V_{GS}=0\text{V}$	75			V
Zero-Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=75\text{V}$ , $V_{GS}=0\text{V}$			1	$\mu\text{A}$
Gate-to-Source Leakage Current	$I_{GSS}$	$V_{GS}=\pm 16\text{V}$ , $V_{DS}=0\text{V}$			$\pm 10$	$\mu\text{A}$

Marking : K4179

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# 2SK4179GS

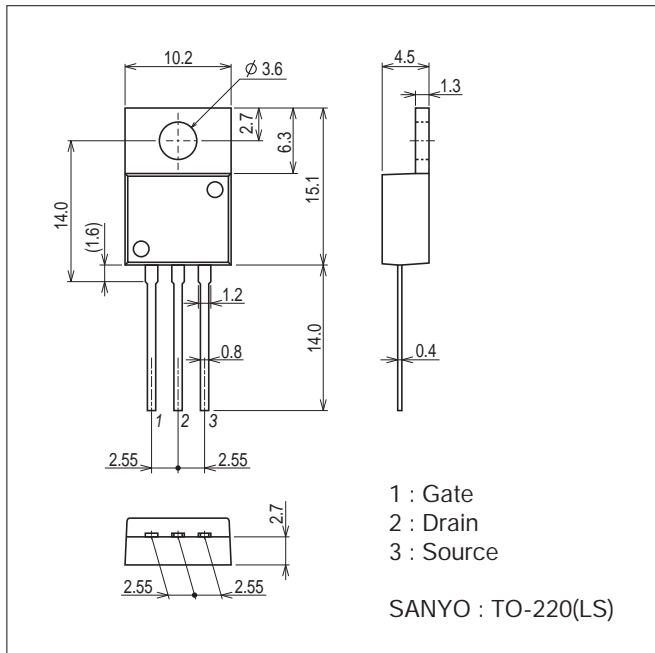
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=10V, I_D=1mA$	2		4	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=10V, I_D=40A$		35		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)}$	$I_D=40A, V_{GS}=10V$		10.5	13.7	m $\Omega$
Input Capacitance	$C_{iss}$	$V_{DS}=20V, f=1MHz$		5400		pF
Output Capacitance	$C_{oss}$	$V_{DS}=20V, f=1MHz$		480		pF
Reverse Transfer Capacitance	$C_{rss}$	$V_{DS}=20V, f=1MHz$		350		pF
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		62		ns
Rise Time	$t_r$	See specified Test Circuit.		335		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit.		220		ns
Fall Time	$t_f$	See specified Test Circuit.		160		ns
Total Gate Charge	$Q_g$	$V_{DS}=30V, V_{GS}=10V, I_D=80A$		100		nC
Gate-to-Source Charge	$Q_{gs}$	$V_{DS}=30V, V_{GS}=10V, I_D=80A$		30		nC
Gate-to-Drain "Miller" Charge	$Q_{gd}$	$V_{DS}=30V, V_{GS}=10V, I_D=80A$		28		nC
Diode Forward Voltage	$V_{SD}$	$I_S=80A, V_{GS}=0V$		1.07	1.5	V

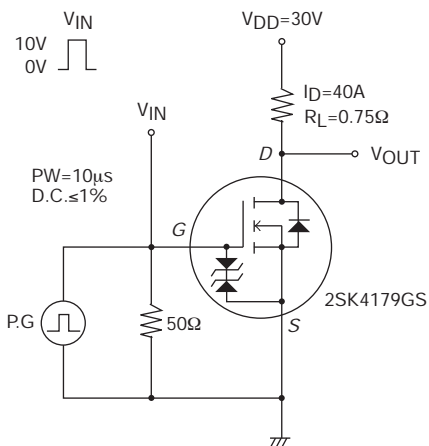
## Package Dimensions

unit : mm (typ)

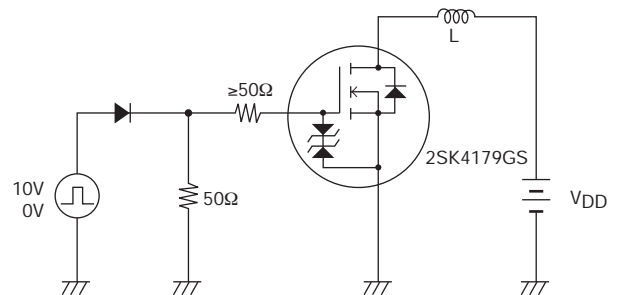
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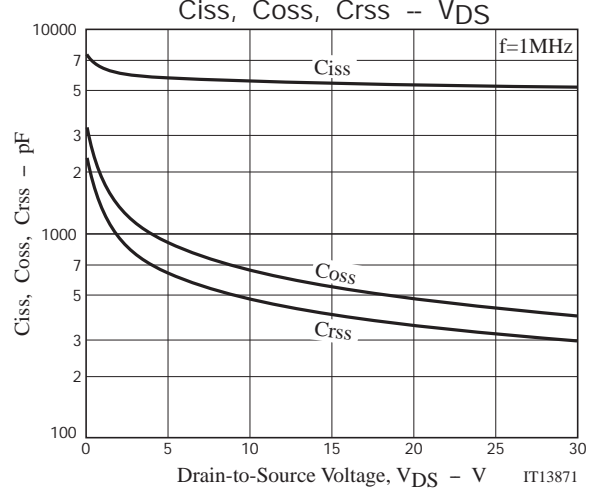
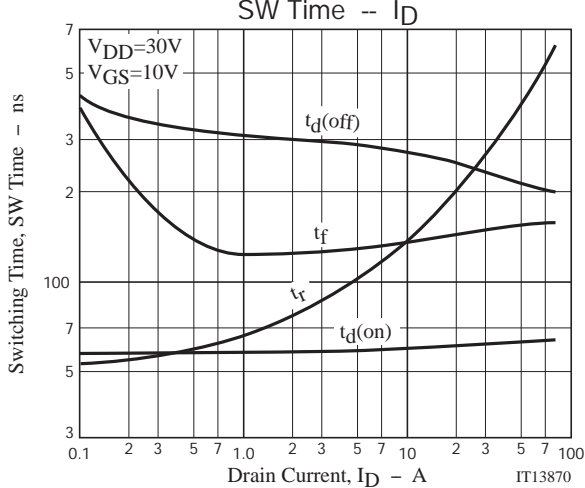
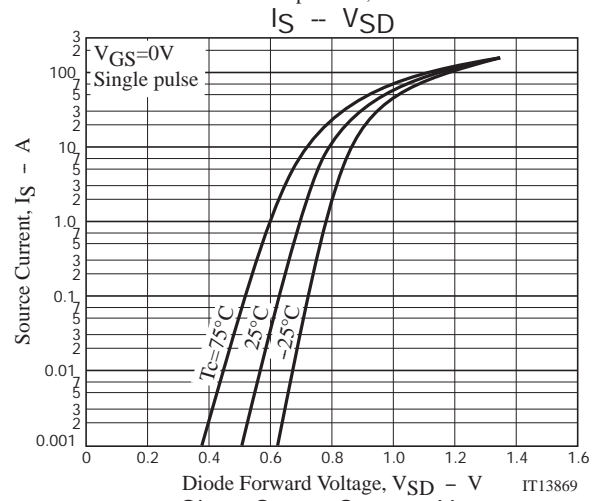
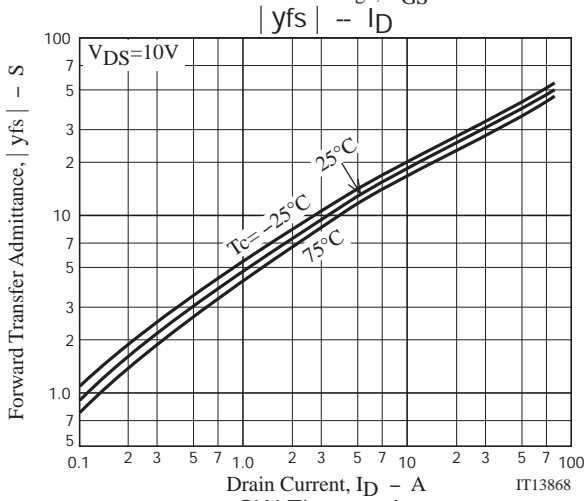
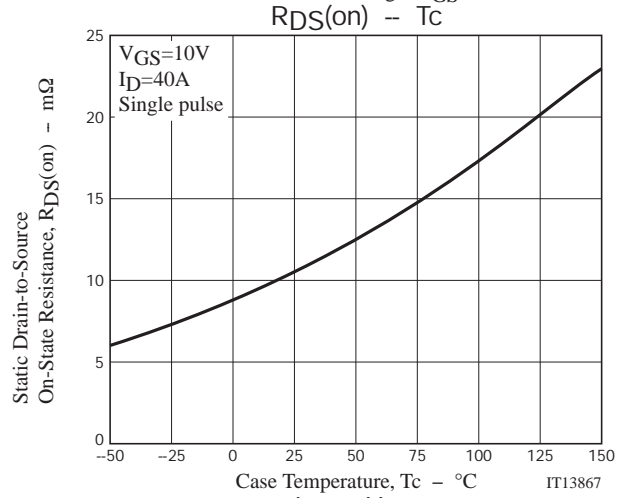
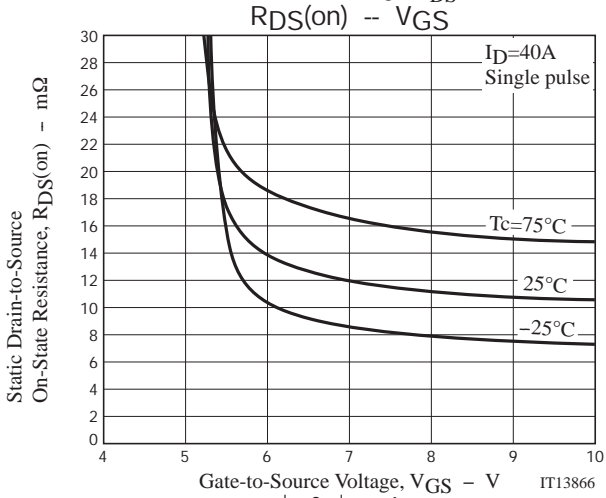
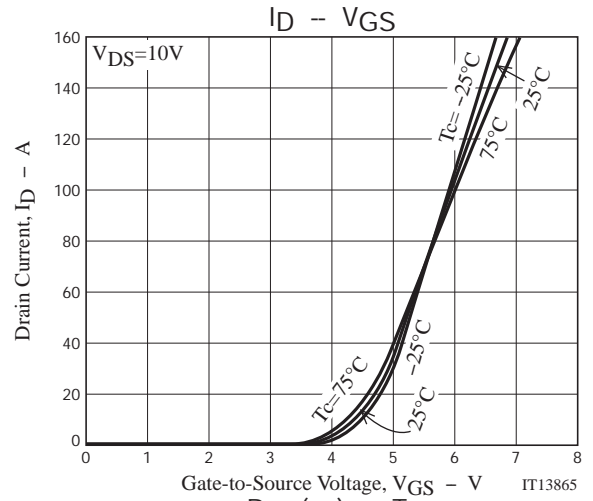
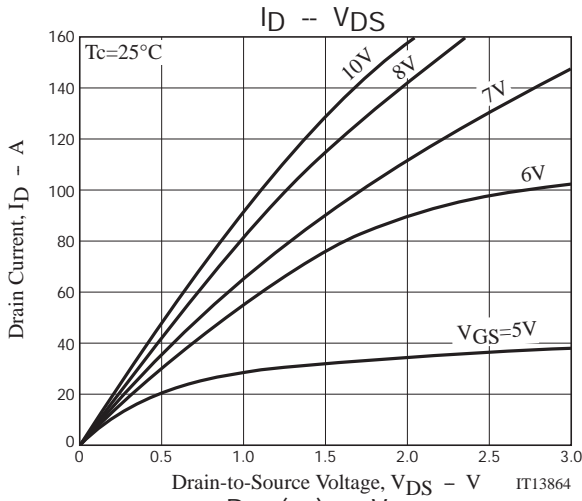


## Switching Time Test Circuit

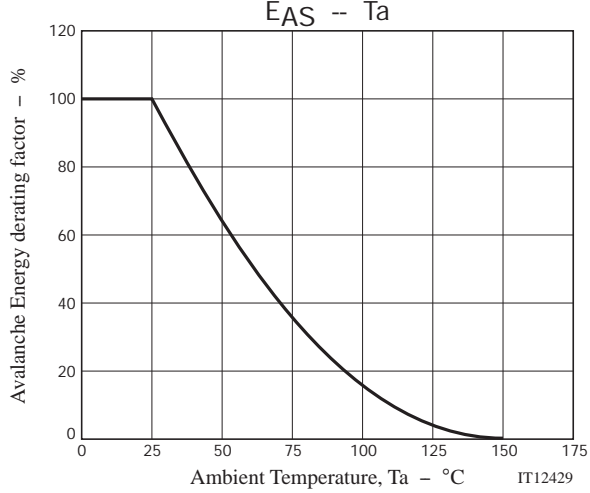
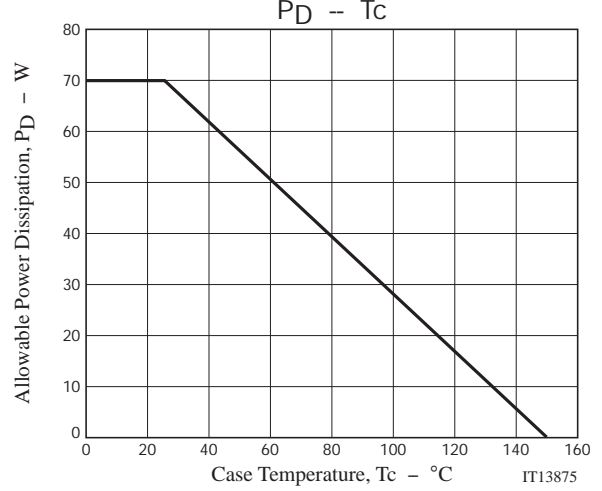
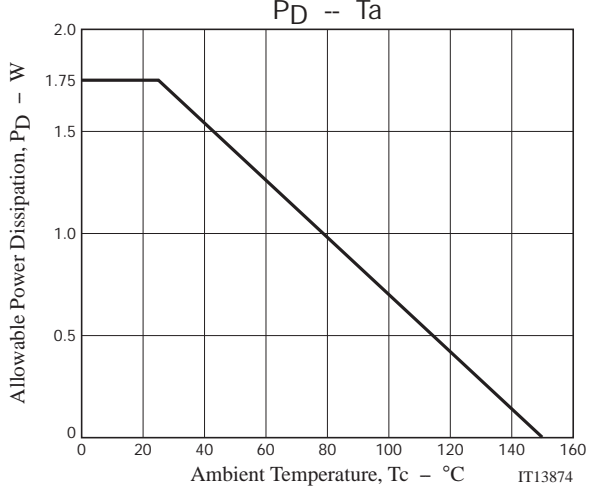
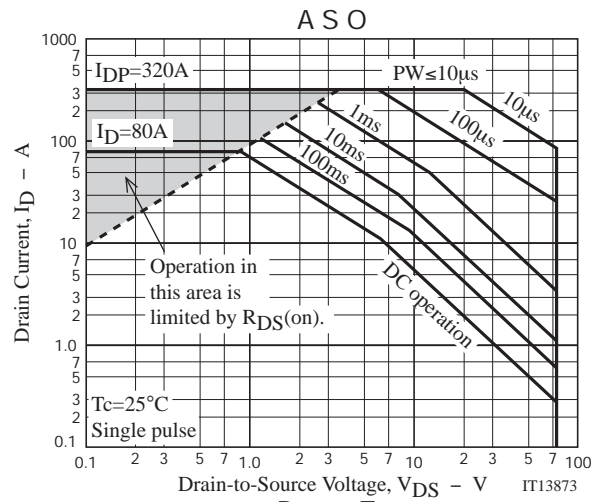
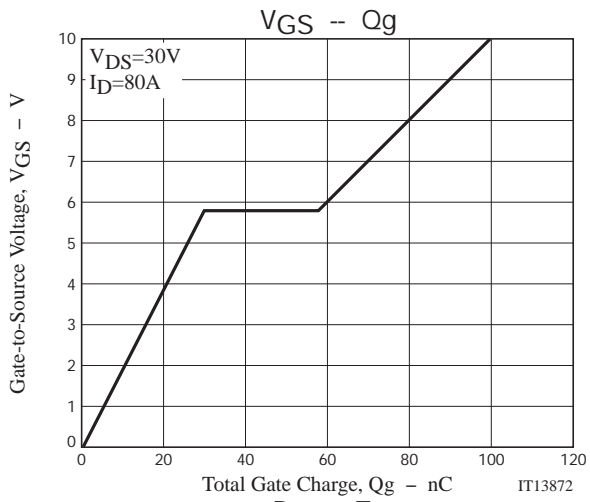


## Avalanche Resistance Test Circuit





# 2SK4179GS



Note on usage : Since the 2SK4179GS is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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