



SANYO Semiconductors

# DATA SHEET

An ON Semiconductor Company

N-Channel Silicon MOSFET

## 2SK4171 — General-Purpose Switching Device Applications

### Features

- Low ON-resistance.
- Load switching applications.
- Motor drive applications.
- Avalanche resistance guarantee.

### Specifications

**Absolute Maximum Ratings** at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V <sub>DSS</sub>		60	V
Gate-to-Source Voltage	V <sub>GSS</sub>		±20	V
Drain Current (DC)	I <sub>D</sub>		100	A
Drain Current (Pulse)	I <sub>DP</sub>	PW≤10μs, duty cycle≤1%	400	A
Allowable Power Dissipation	P <sub>D</sub>		1.75	W
		T <sub>c</sub> =25°C	75	W
Channel Temperature	T <sub>ch</sub>		150	°C
Storage Temperature	T <sub>stg</sub>		-55 to +150	°C
Avalanche Energy (Single pulse) *1	E <sub>AS</sub>		370	mJ
Avalanche Current *2	I <sub>AV</sub>		65	A

Note : \*1 V<sub>DD</sub>=30V, L=100μH

\*2 L≤100μH, Single pulse

Marking : K4171

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# 2SK4171

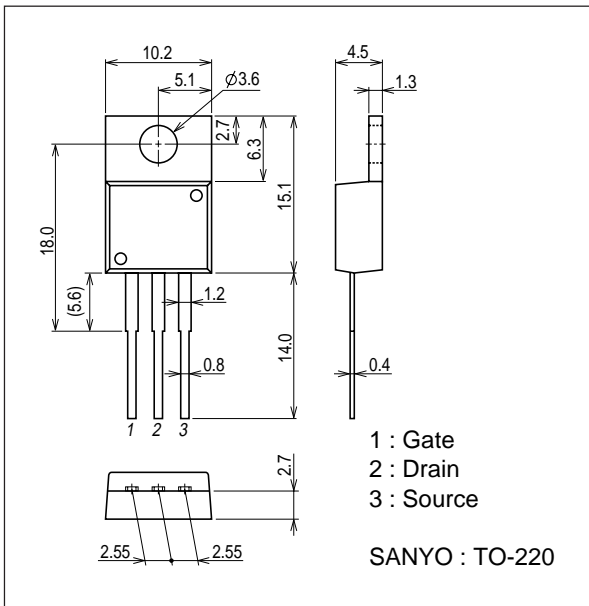
## Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=1mA, V_{GS}=0V$	60			V
Zero-Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=60V, V_{GS}=0V$			1	$\mu A$
Gate-to-Source Leakage Current	$I_{GSS}$	$V_{GS}=\pm 16V, V_{DS}=0V$			$\pm 10$	$\mu A$
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=10V, I_D=1mA$	1.2		2.6	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=10V, I_D=50A$	35	60		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=50A, V_{GS}=10V$		5.5	7.2	$m\Omega$
	$R_{DS(on)2}$	$I_D=50A, V_{GS}=4V$		7.5	10.5	$m\Omega$
Input Capacitance	$C_{iss}$	$V_{DS}=20V, f=1MHz$		6900		pF
Output Capacitance	$C_{oss}$	$V_{DS}=20V, f=1MHz$		740		pF
Reverse Transfer Capacitance	$C_{rss}$	$V_{DS}=20V, f=1MHz$		540		pF
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		48		ns
Rise Time	$t_r$	See specified Test Circuit.		380		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit.		500		ns
Fall Time	$t_f$	See specified Test Circuit.		370		ns
Total Gate Charge	$Q_g$	$V_{DS}=30V, V_{GS}=10V, I_D=100A$		135		nC
Gate-to-Source Charge	$Q_{gs}$	$V_{DS}=30V, V_{GS}=10V, I_D=100A$		18		nC
Gate-to-Drain "Miller" Charge	$Q_{gd}$	$V_{DS}=30V, V_{GS}=10V, I_D=100A$		50		nC
Diode Forward Voltage	$V_{SD}$	$I_S=100A, V_{GS}=0V$		1.0	1.2	V

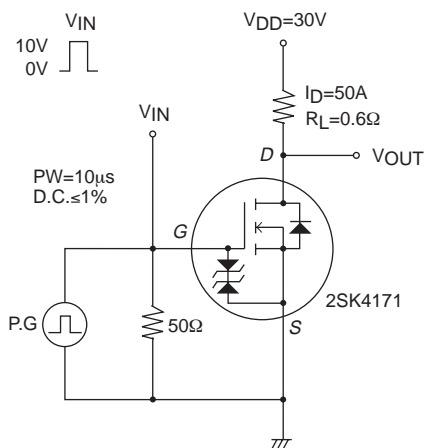
## Package Dimensions

unit : mm (typ)

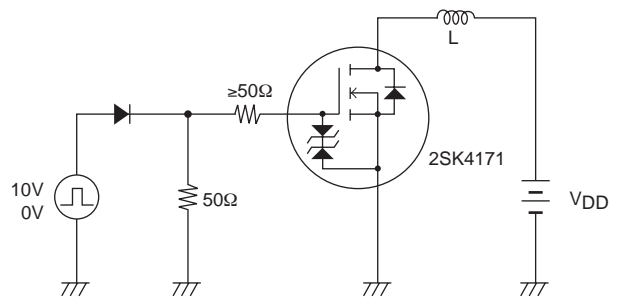
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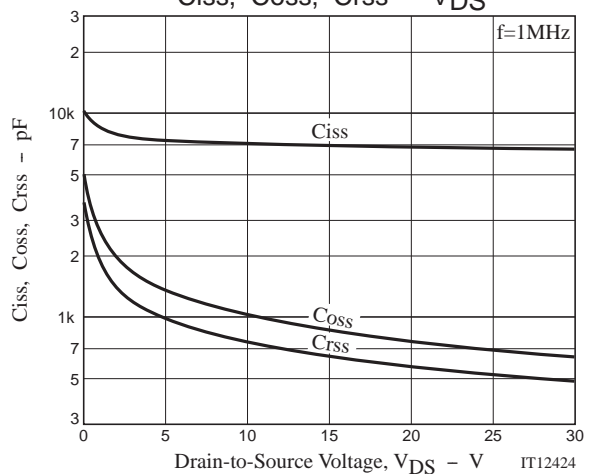
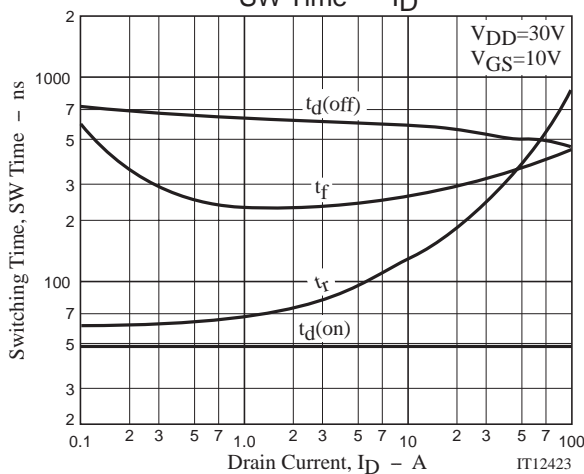
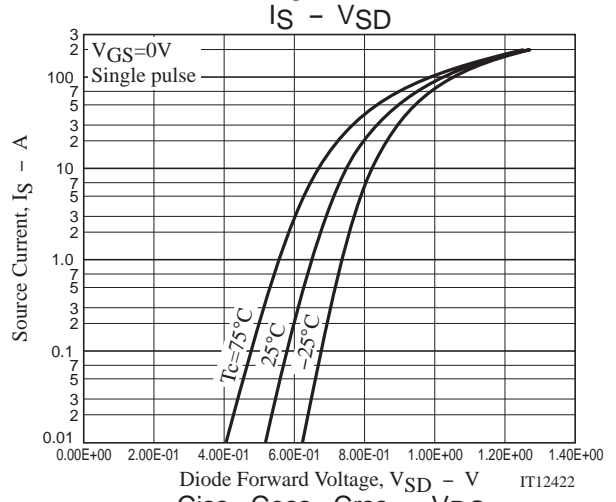
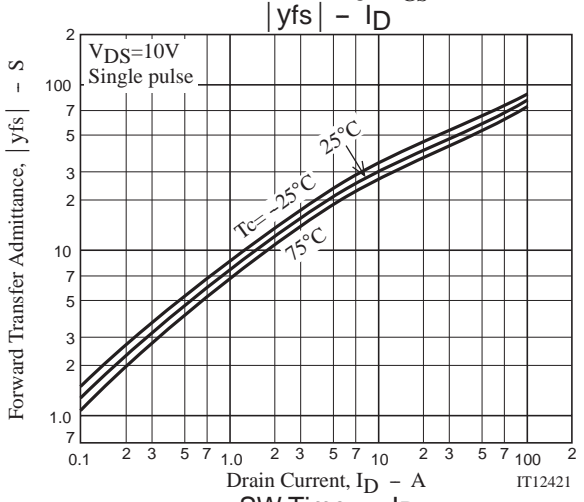
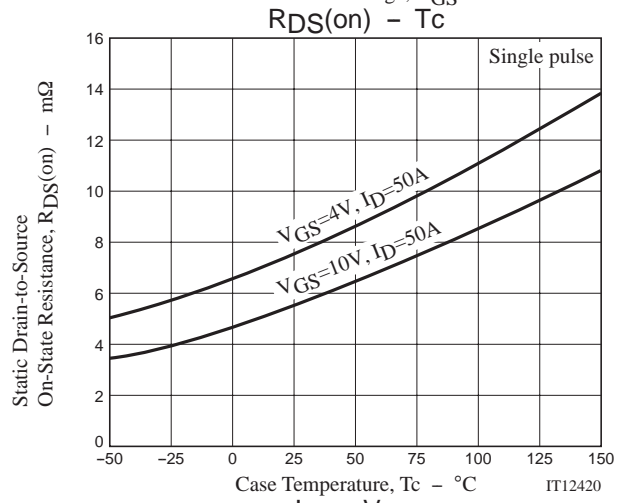
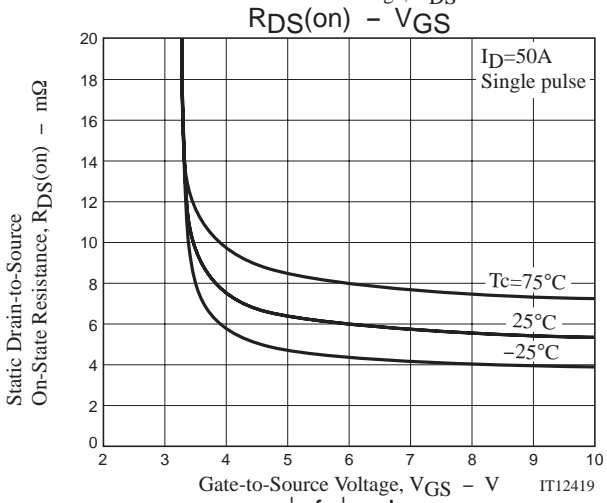
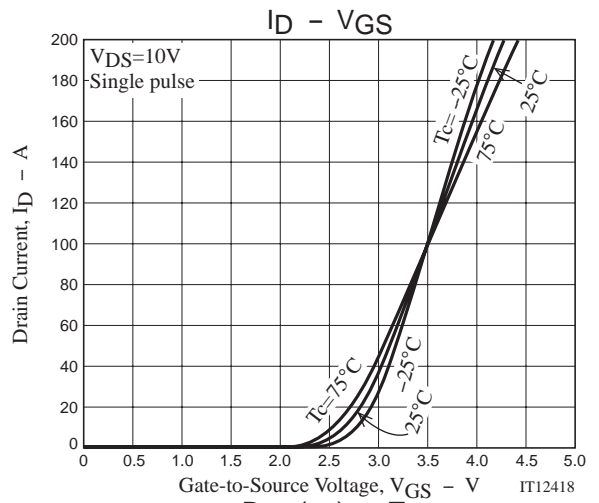
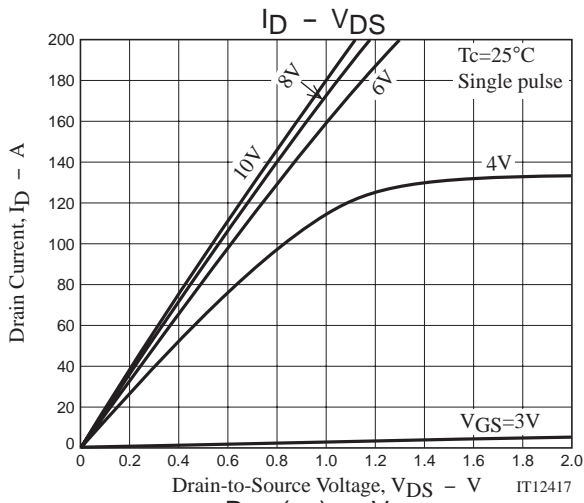


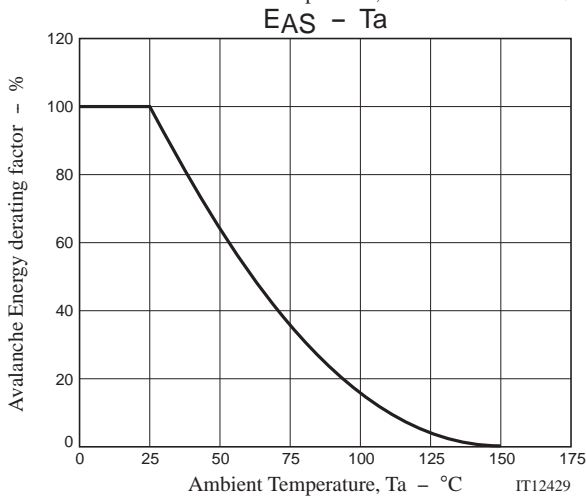
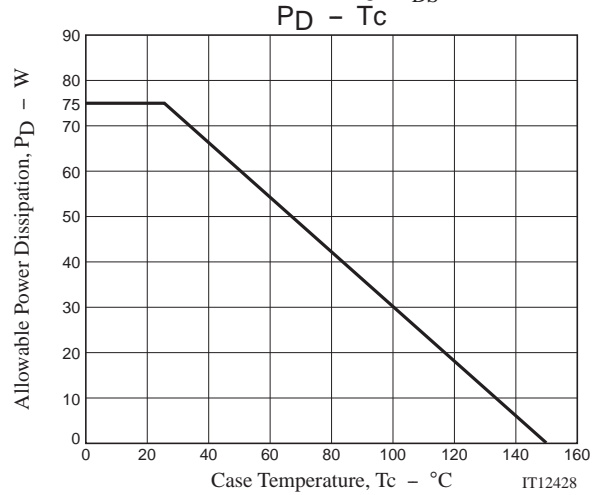
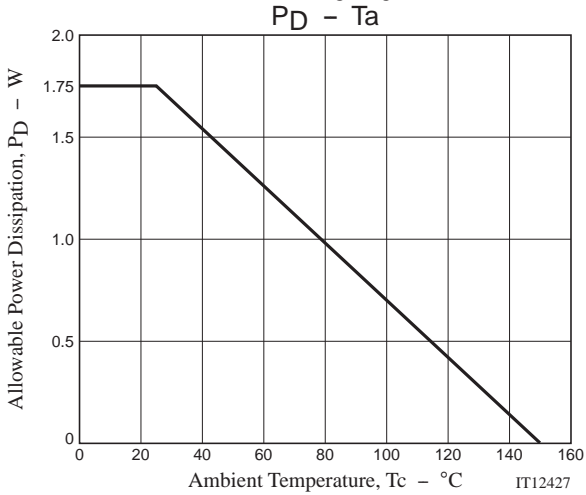
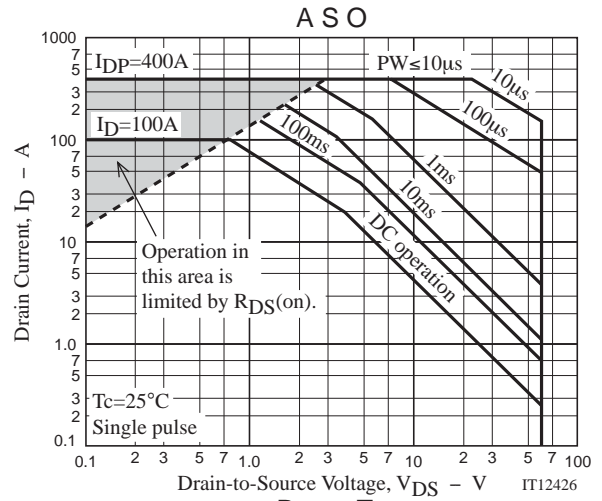
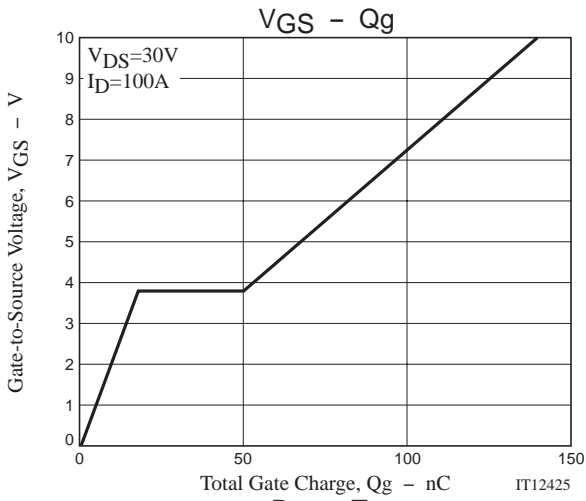
## Switching Time Test Circuit



## Avalanche Resistance Test Circuit







Note on usage : Since the 2SK4171 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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