


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 $T_a=25^{\circ}\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DS}		60	V
Gate-to-Source Voltage	V_{GS}		± 20	V
Drain Current (DC)	I_D		100	A
Drain Current (Pulse)	I_{DP}	$PW \leq 10\mu\text{s}$, duty cycle $\leq 1\%$	400	A
Allowable Power Dissipation	P_D		1.75	W
		$T_c=25^{\circ}\text{C}$	75	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}		370	mJ
Avalanche Current *2	I_{AV}		65	A

 Note : *1 $V_{DD}=30\text{V}$, $L=100\mu\text{H}$

 *2 $L \leq 100\mu\text{H}$, Single pulse

Marking : K4171

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2SK4171

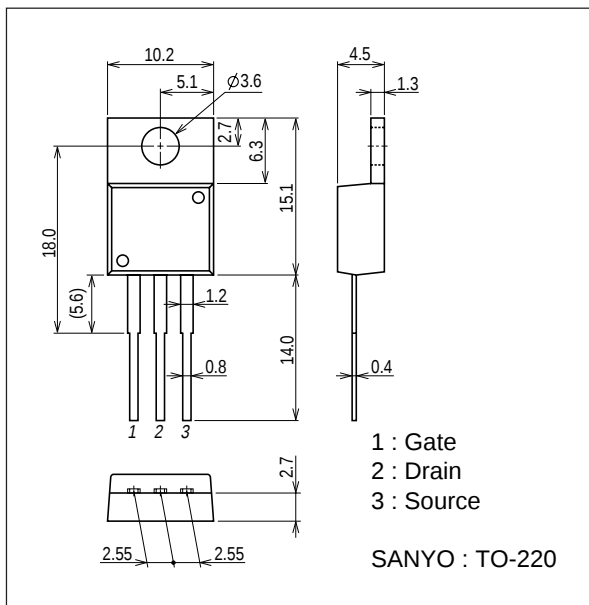
Electrical Characteristics at Ta=25°C

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	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 16V, V_{DS}=0V$			± 10	μA
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

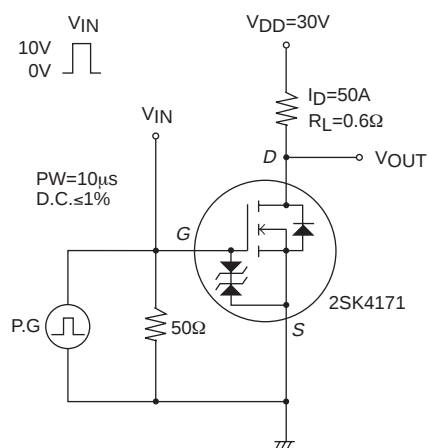
Package Dimensions

unit : mm (typ)

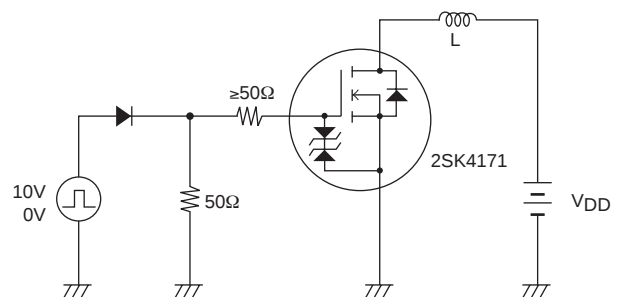
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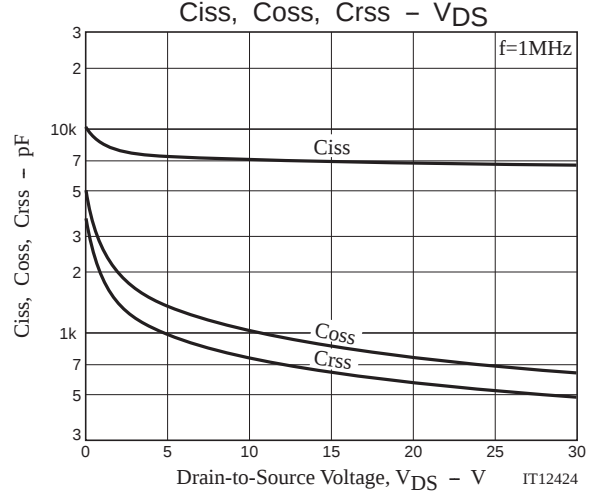
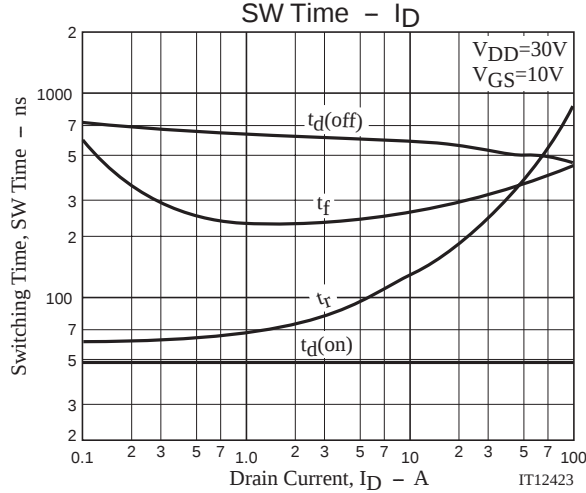
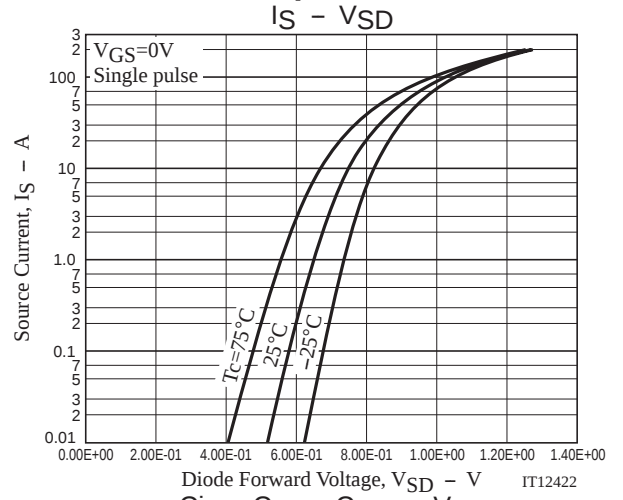
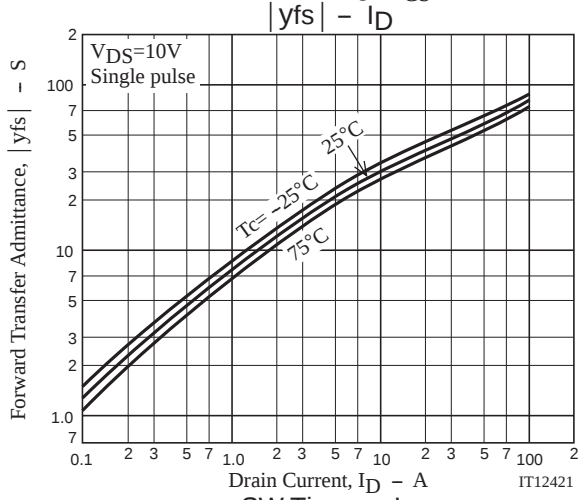
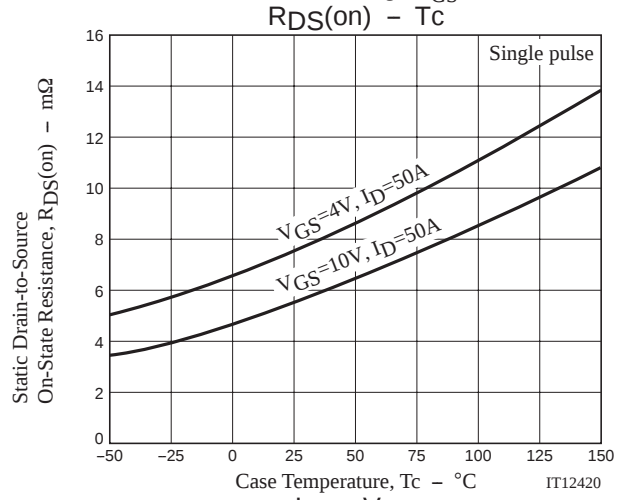
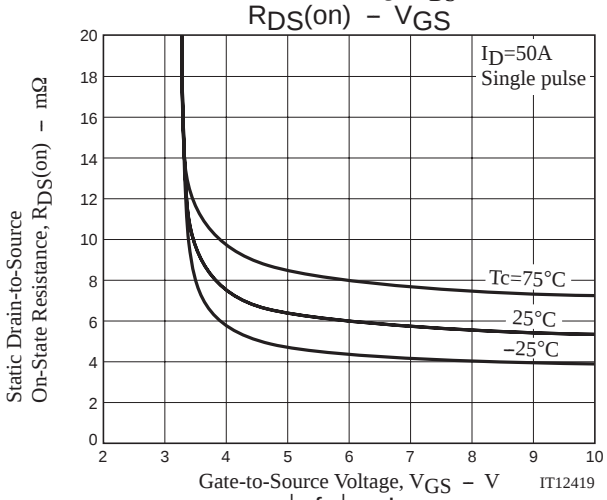
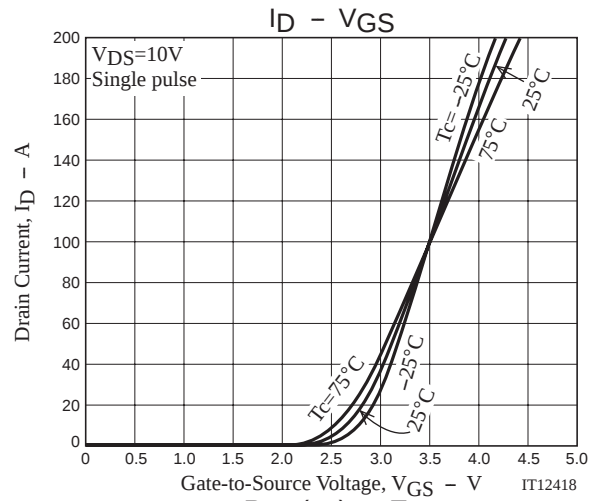
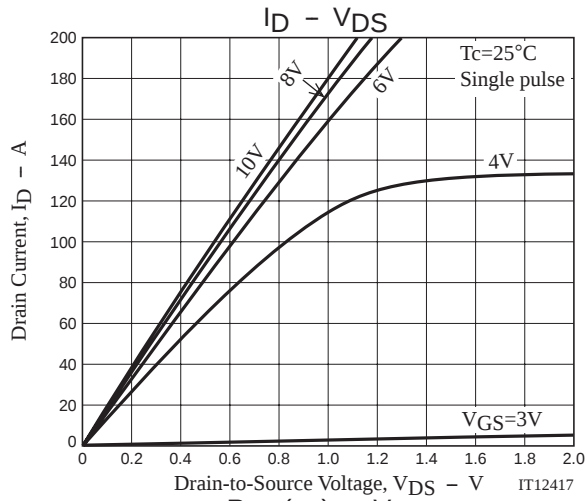


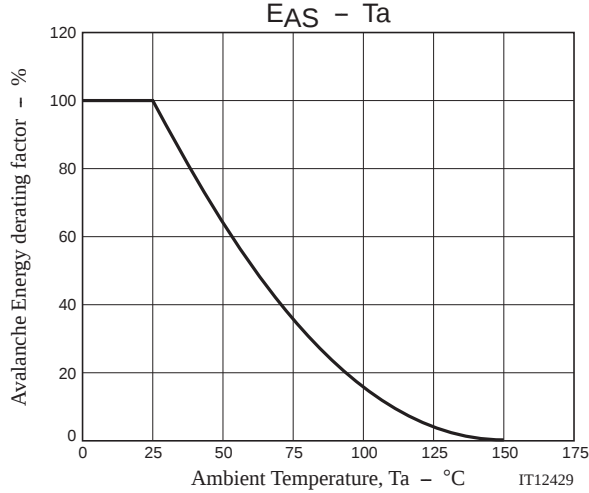
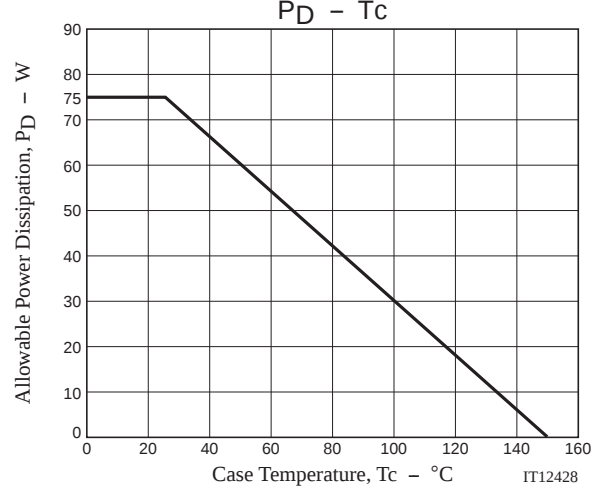
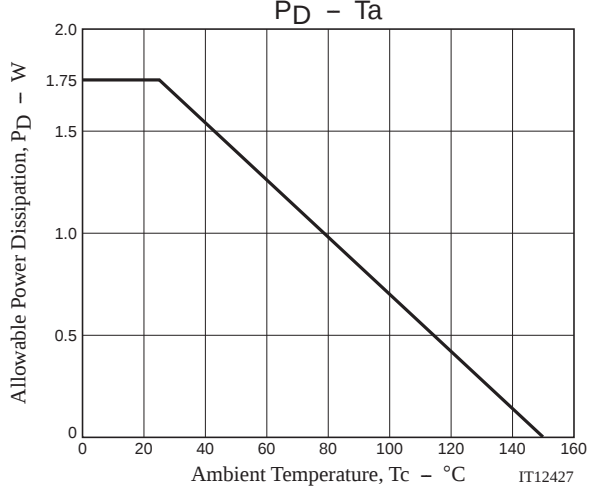
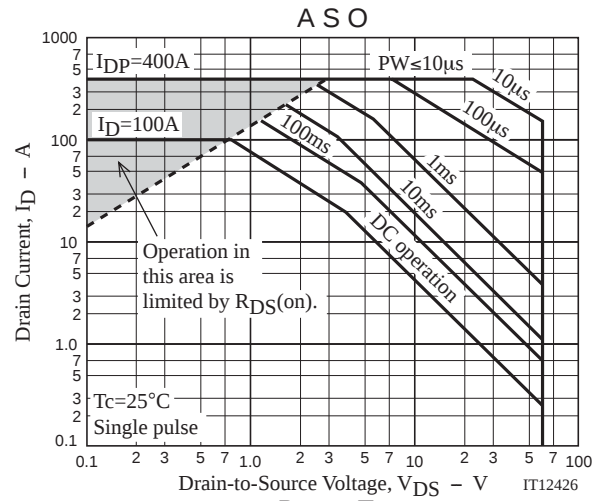
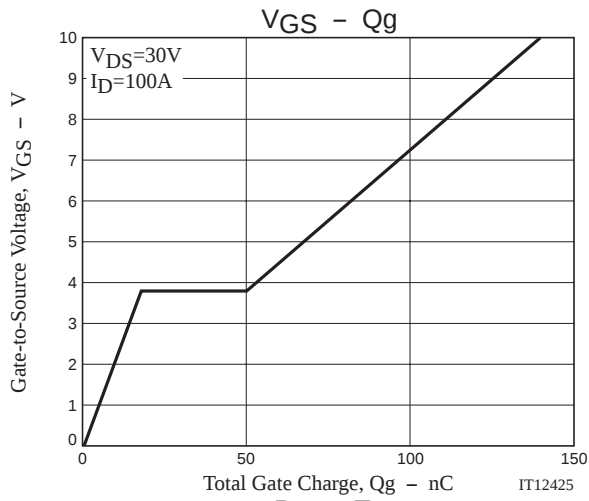
Switching Time Test Circuit



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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