



SANYO Semiconductors

# DATA SHEET

An ON Semiconductor Company

## 2SK4210 — N-Channel Silicon MOSFET General-Purpose Switching Device Applications

### Features

- Low ON-resistance, 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	$V_{DSS}$		900	V
Gate-to-Source Voltage	$V_{GSS}$		$\pm 30$	V
Drain Current (DC)	$I_D$		10	A
Drain Current (Pulse)	$I_{DP}$	$PW \leq 10\mu\text{s}$ , duty cycle $\leq 1\%$	20	A
Allowable Power Dissipation	PD		2.5	W
		$T_c=25^\circ\text{C}$	190	W
Channel Temperature	$T_{ch}$		150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$		-55 to +150	$^\circ\text{C}$
Avalanche Energy (Single Pulse) *1	EAS		560	mJ
Avalanche Current *2	$I_{AV}$		10	A

Note : \*1  $V_{DD}=99\text{V}$ ,  $L=10\text{mH}$ ,  $I_{AV}=10\text{A}$

\*2  $L \leq 10\text{mH}$ , Single pulse

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

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=10\text{mA}$ , $V_{GS}=0\text{V}$	900			V
Zero-Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=720\text{V}$ , $V_{GS}=0\text{V}$			1.0	mA
Gate-to-Source Leakage Current	$I_{GSS}$	$V_{GS}=\pm 30\text{V}$ , $V_{DS}=0\text{V}$			$\pm 100$	nA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=10\text{V}$ , $I_D=1\text{mA}$	2.0		4.0	V

Marking : K4210

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# 2SK4210

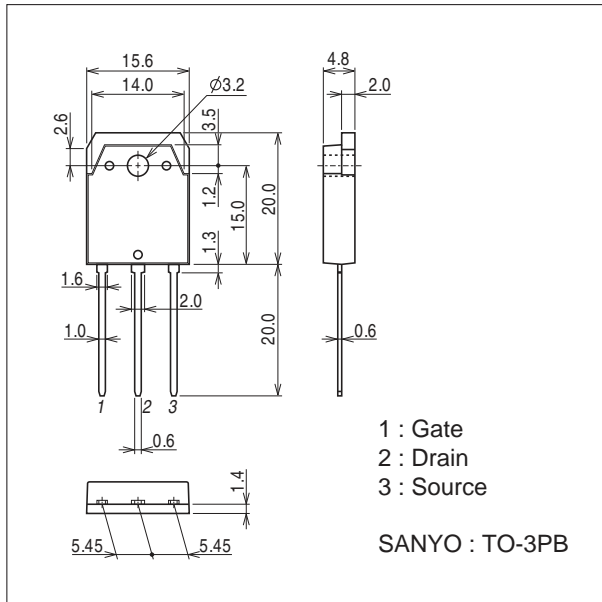
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=20V, I_D=5A$	2.8	5.6		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)}$	$I_D=5A, V_{GS}=10V$		1.0	1.3	$\Omega$
Input Capacitance	$C_{iss}$	$V_{DS}=30V, f=1MHz$		1500		pF
Output Capacitance	$C_{oss}$	$V_{DS}=30V, f=1MHz$		230		pF
Reverse Transfer Capacitance	$C_{rss}$	$V_{DS}=30V, f=1MHz$		77		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.		250		ns
Fall Time	$t_f$	See specified Test Circuit.		80		ns
Total Gate Charge	$Q_g$	$V_{DS}=200V, V_{GS}=10V, I_D=10A$		75		nC
Gate-to-Source Charge	$Q_{gs}$	$V_{DS}=200V, V_{GS}=10V, I_D=10A$		12		nC
Gate-to-Drain "Miller" Charge	$Q_{gd}$	$V_{DS}=200V, V_{GS}=10V, I_D=10A$		38		nC
Diode Forward Voltage	$V_{SD}$	$I_S=10A, V_{GS}=0V$		0.85	1.2	V

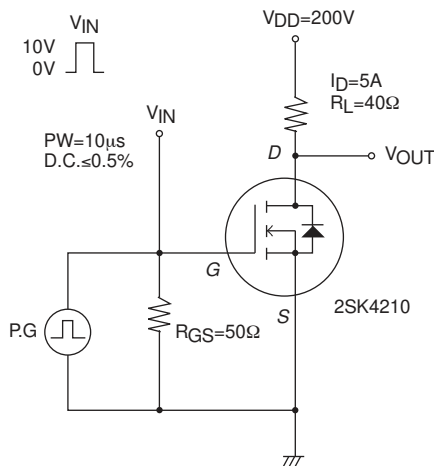
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unit : mm (typ)

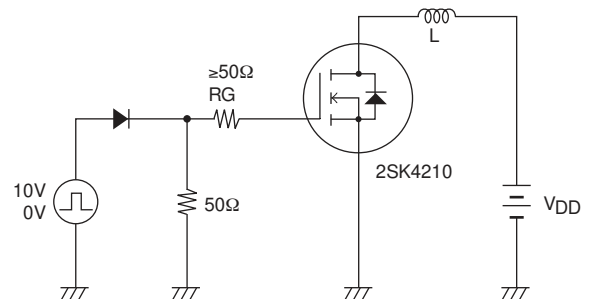
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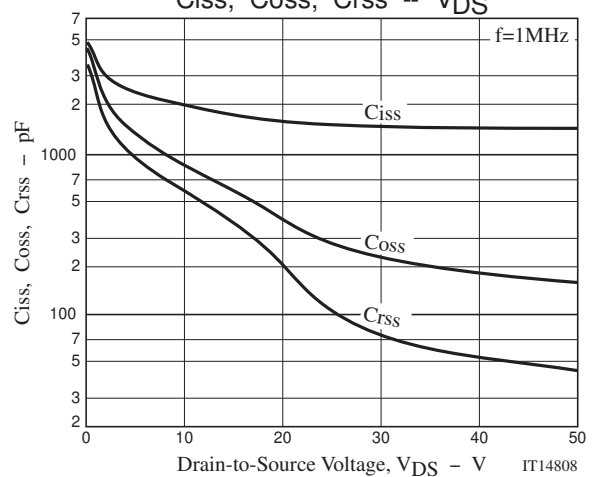
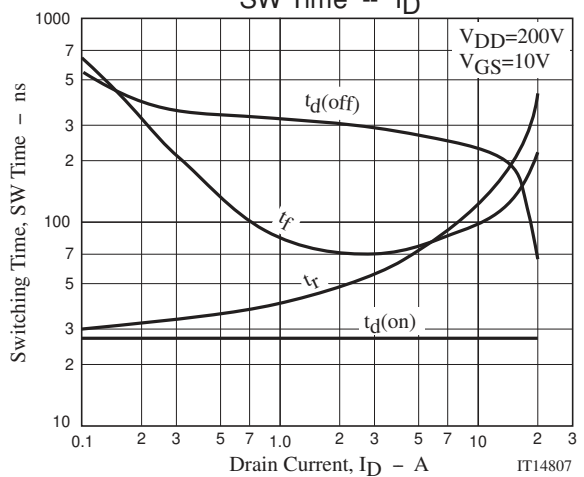
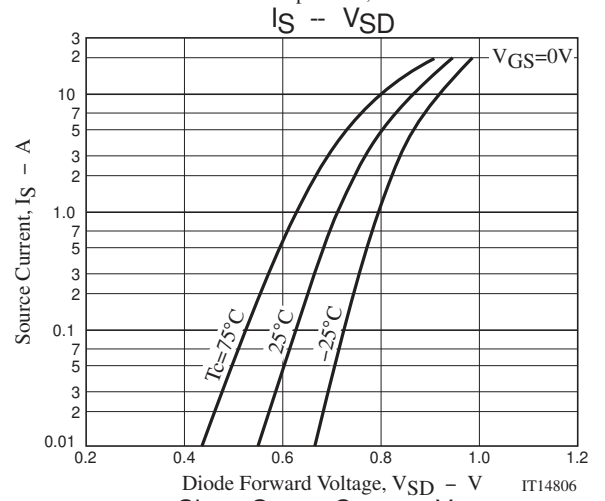
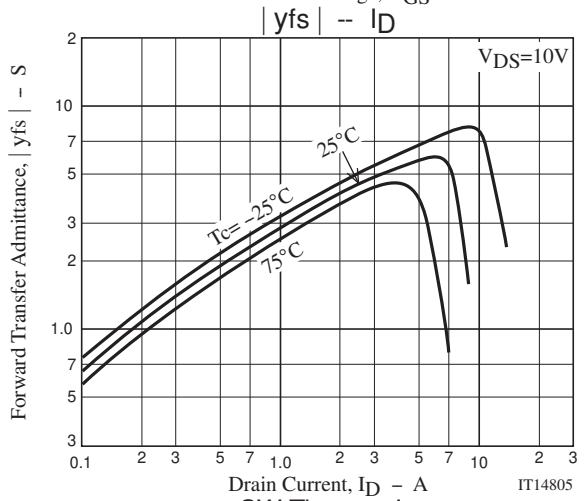
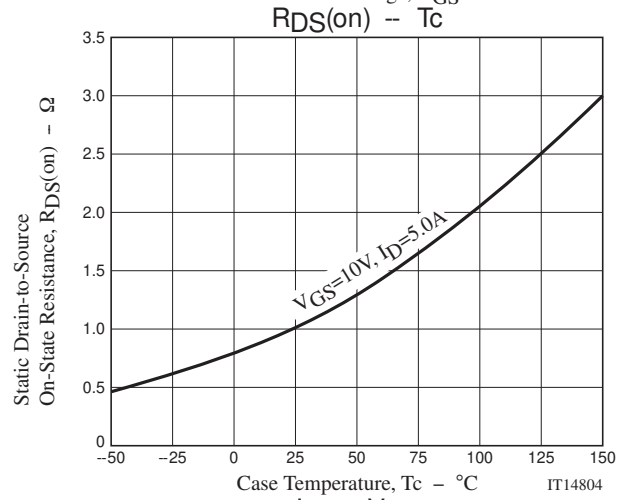
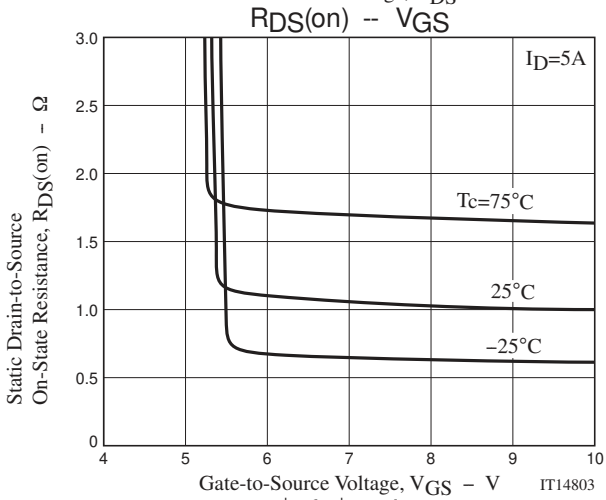
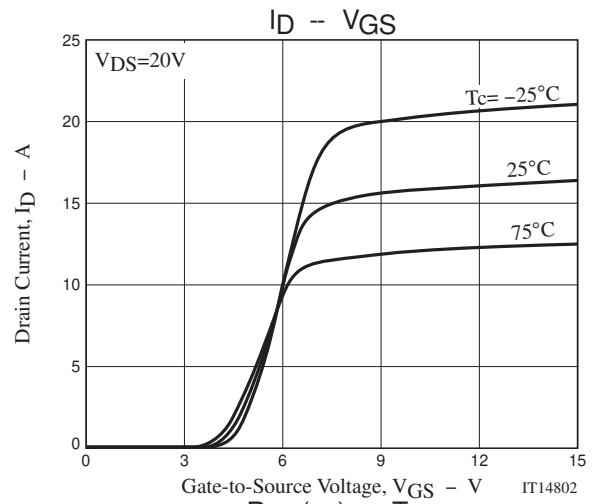
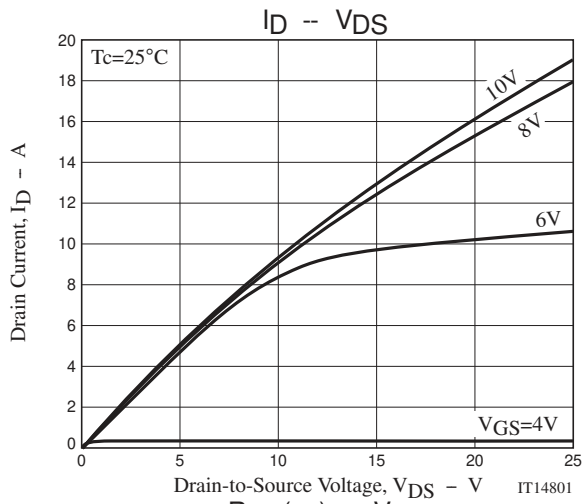


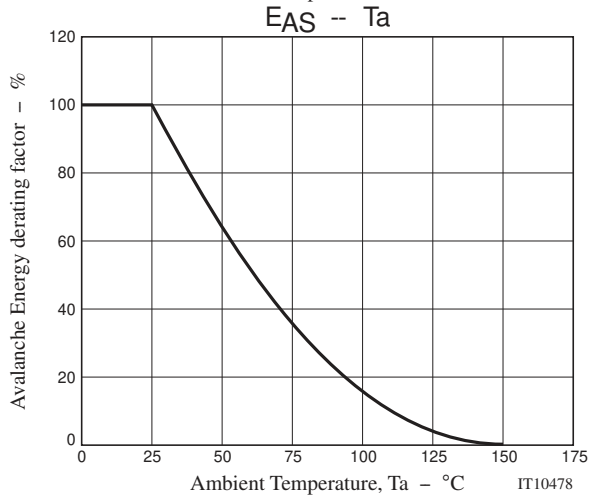
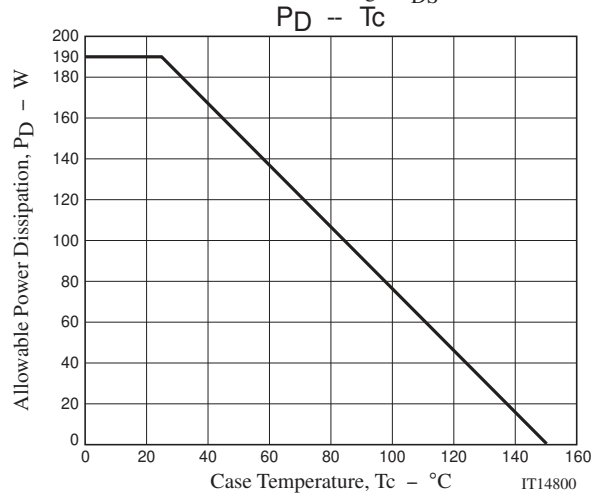
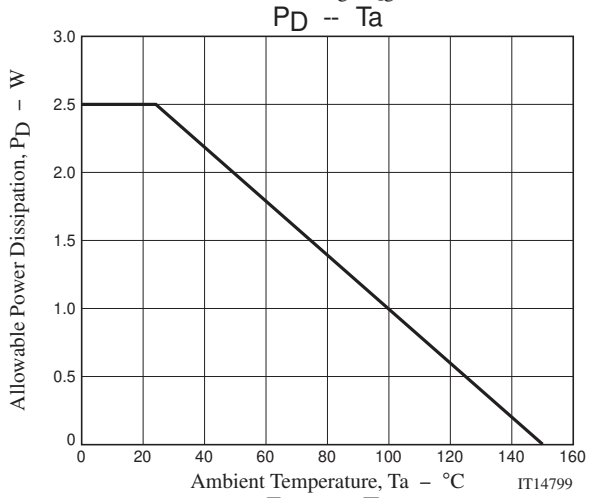
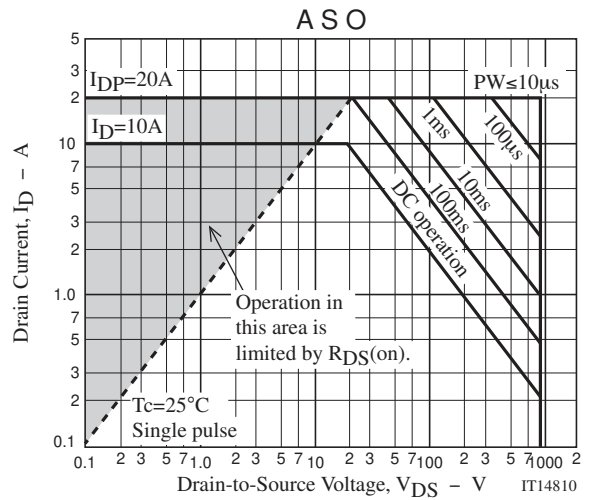
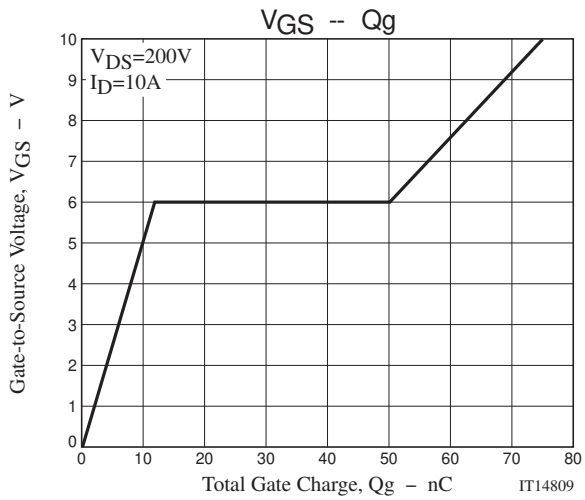
## Switching Time Test Circuit



## Avalanche Resistance Test Circuit







Note on usage : Since the 2SK4210 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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