

**2SK1691**

## Ultrahigh-Speed Switching Applications

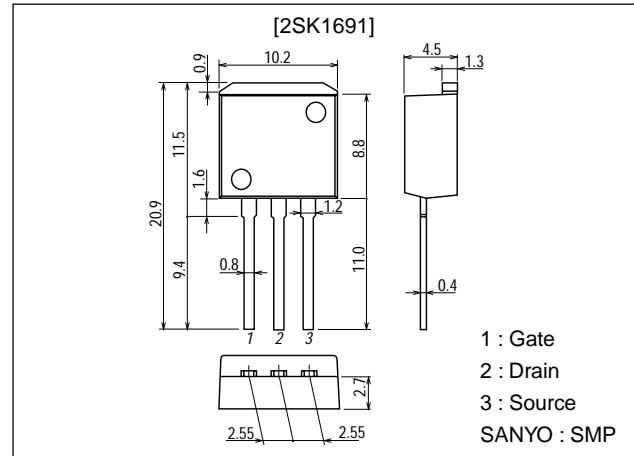
### Features

- Low ON resistance.
- Ultrahigh-speed switching.

### Package Dimensions

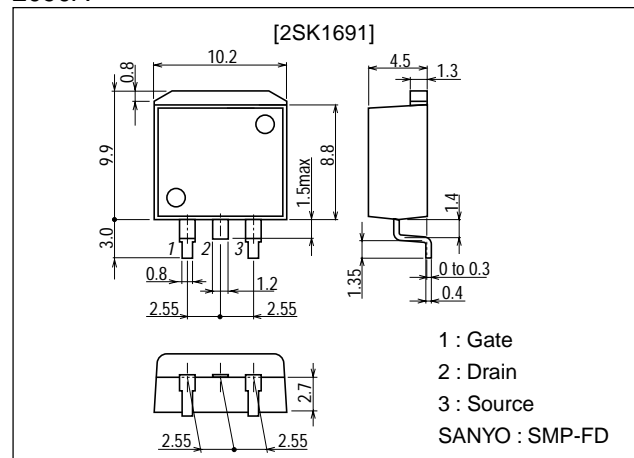
unit:mm

2093A



unit:mm

2090A



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**SANYO Electric Co.,Ltd. Semiconductor Company**

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# 2SK1691

## Specifications

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

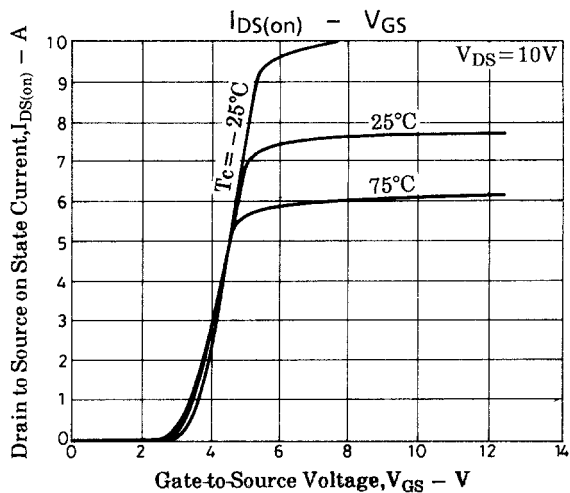
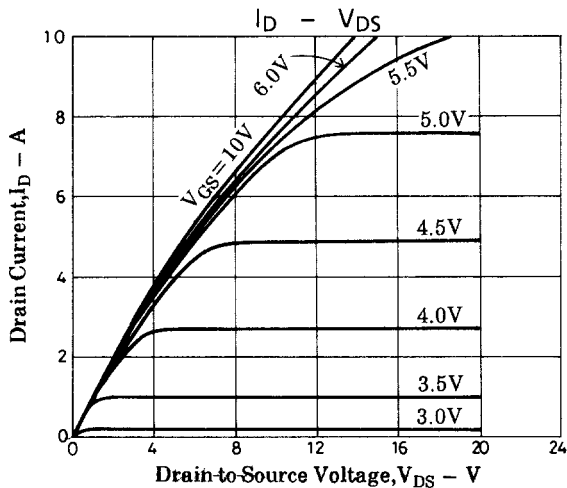
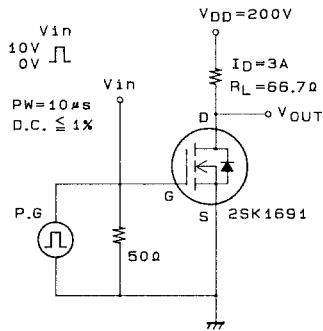
Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	$V_{DS}$		450	V
Gate-to-Source Voltage	$V_{GS}$		$\pm 30$	V
Drain Current (DC)	$I_D$		5	A
Drain Current (pulse)	$I_{DP}$		20	A
Allowable Power Dissipation	$P_D$		1.65	W
		$T_c=25^\circ\text{C}$	60	W
Channel Temperature	$T_{ch}$		150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$		-55 to +150	$^\circ\text{C}$

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

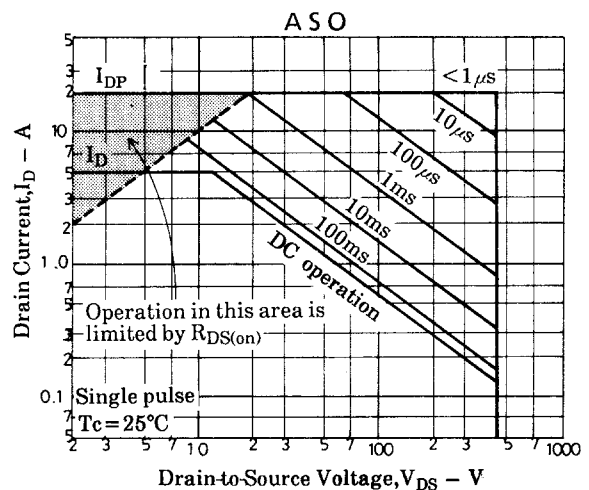
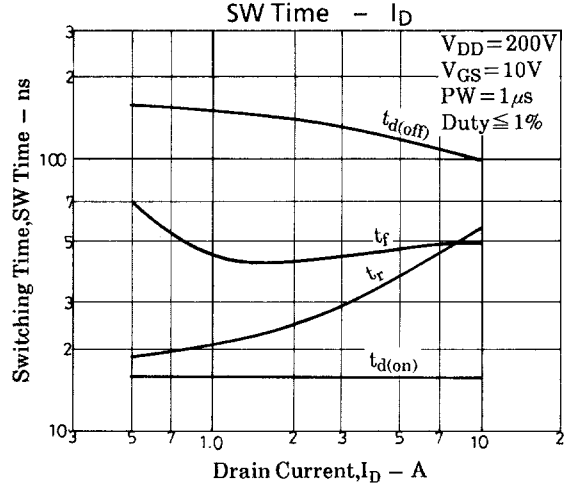
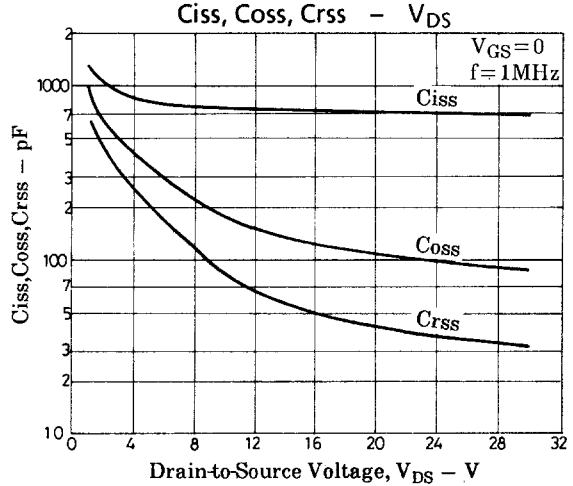
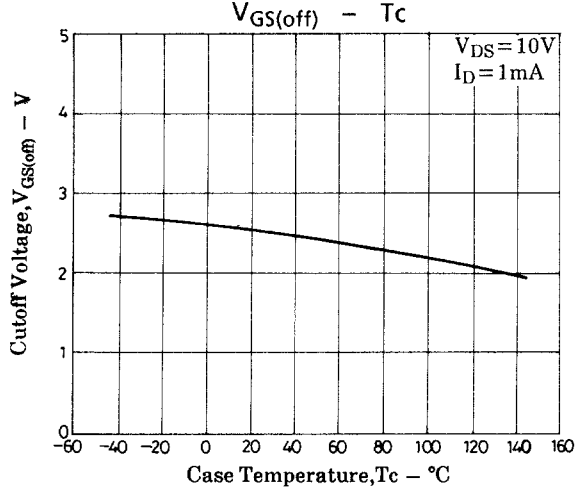
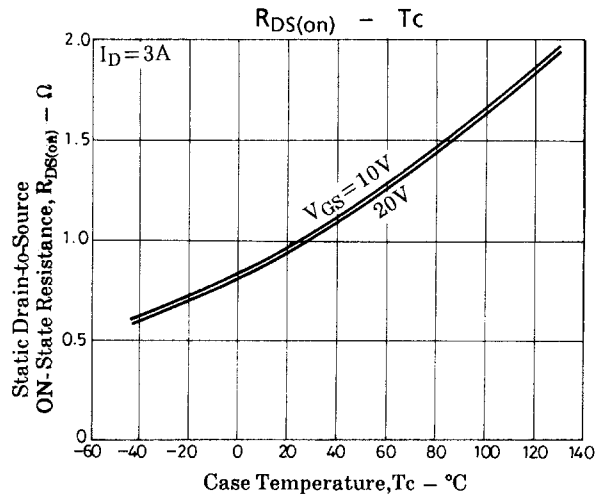
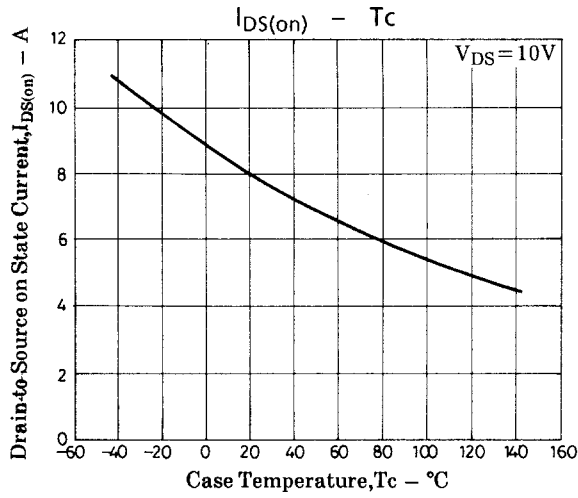
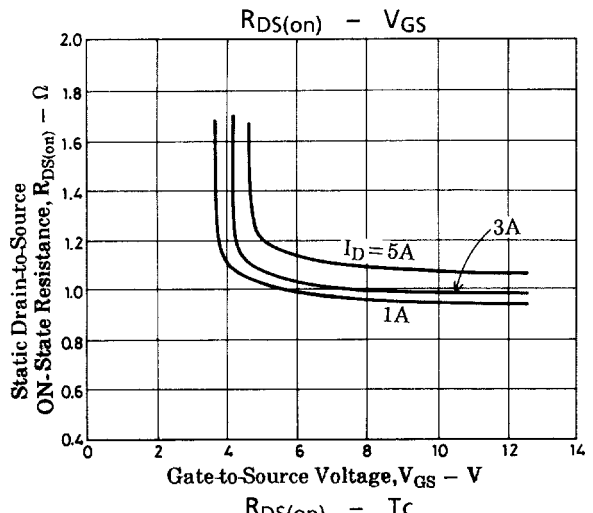
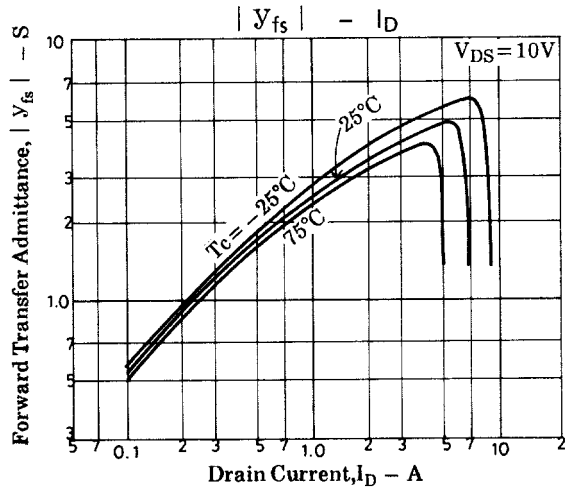
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=1\text{mA}, V_{GS}=0$	450			V
Zero-Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=450\text{V}, V_{GS}=0$			1.0	mA
Gate-to-Source Leakage Current	$I_{GSS}$	$V_{GS}=\pm 30\text{V}, V_{DS}=0$			$\pm 100$	nA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=10\text{V}, I_D=1\text{mA}$	2.0		3.0	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=10\text{V}, I_D=3\text{A}$	2.0	4.0		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)}$	$I_D=3\text{A}, V_{GS}=10\text{V}$		1.0	1.4	$\Omega$
Input Capacitance	$C_{iss}$	$V_{DS}=20\text{V}, f=1\text{MHz}$		700		pF
Output Capacitance	$C_{oss}$	$V_{DS}=20\text{V}, f=1\text{MHz}$		100		pF
Reverse Transfer Capacitance	$C_{rss}$	$V_{DS}=20\text{V}, f=1\text{MHz}$		40		pF
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit		15		ns
Rise Time	$t_r$	See specified Test Circuit		30		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit		130		ns
Fall Time	$t_f$	See specified Test Circuit		45		ns
Diode Forward Voltage	$V_{SD}$	$I_S=3\text{A}, V_{GS}=0$			1.8	V

(Note) Be careful in handling the 2SK1691 because it has no protection diode between gate and source.

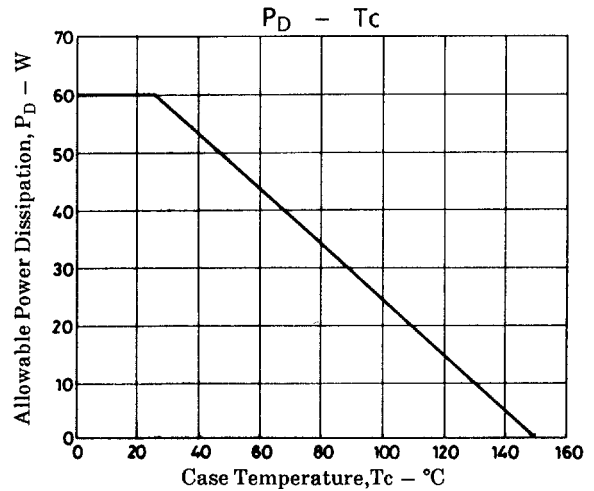
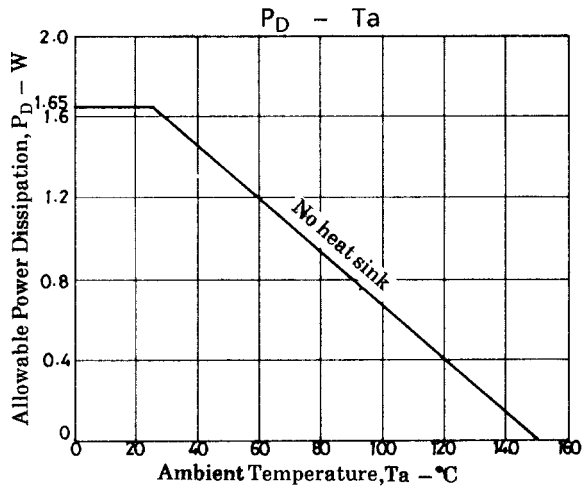
### Switching Time Test Circuit



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