

**2SK1891**

Ultrahigh-Speed Switching Applications

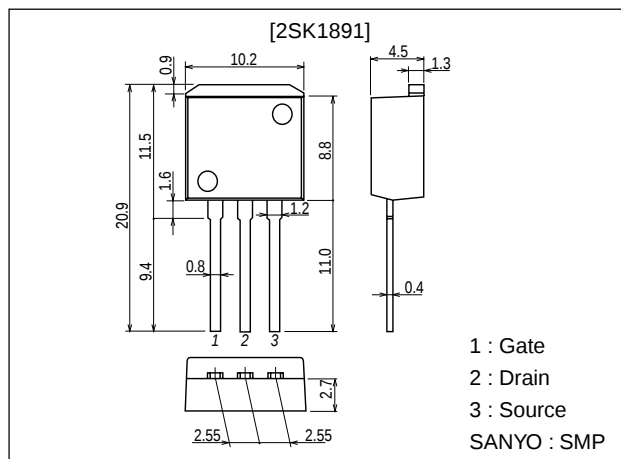
Features

- Low ON resistance.
- Ultrahigh-speed switching.
- Low-voltage drive.
- Surface mount type device making the following possible.
- Reduction in the number of manufacturing processes for 2SK1891-applied equipment.
- High density surface mount applications.
- Small size of 2SK1891-applied equipment.

Package Dimensions

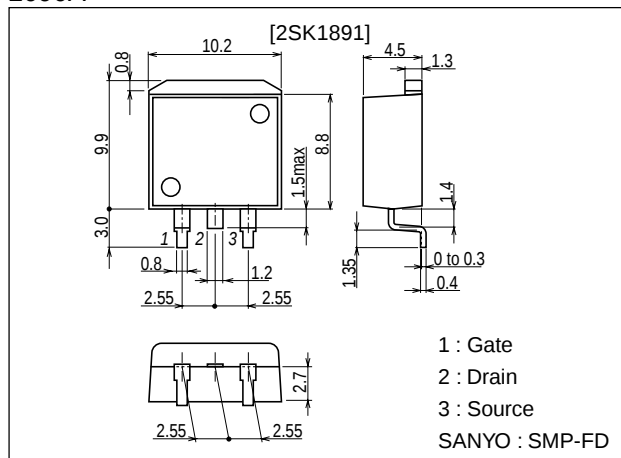
unit:mm

2093A



unit:mm

2090A



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Specifications

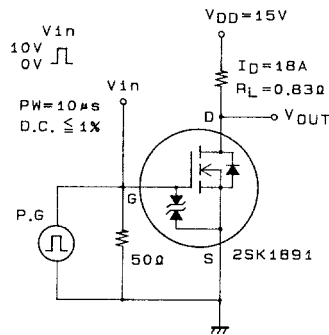
Absolute Maximum Ratings at Ta = 25°C

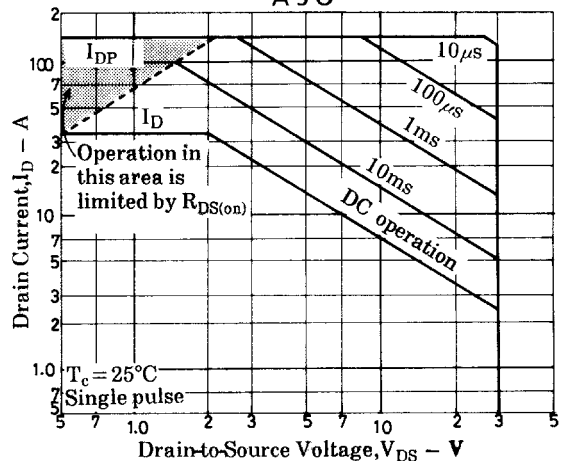
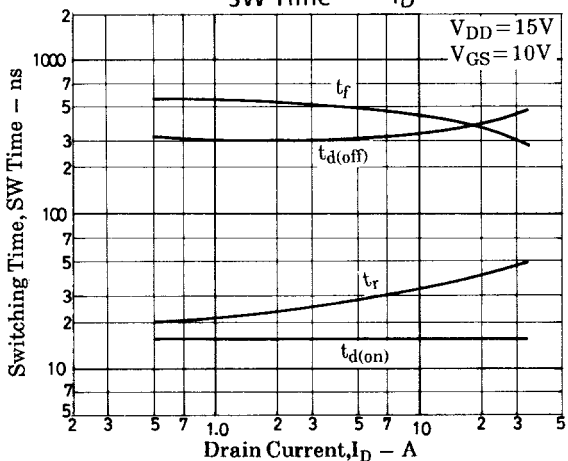
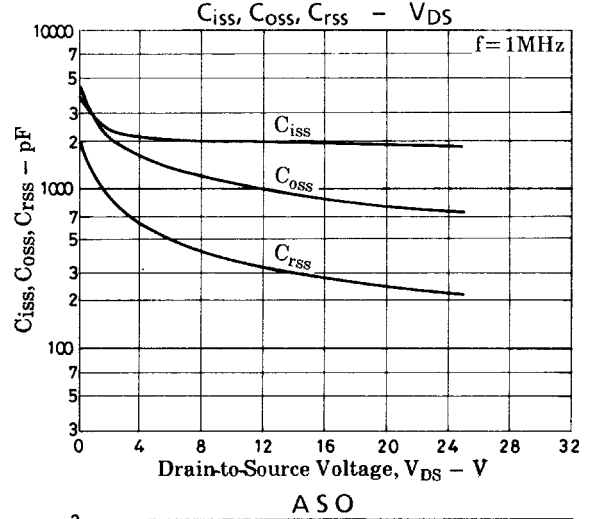
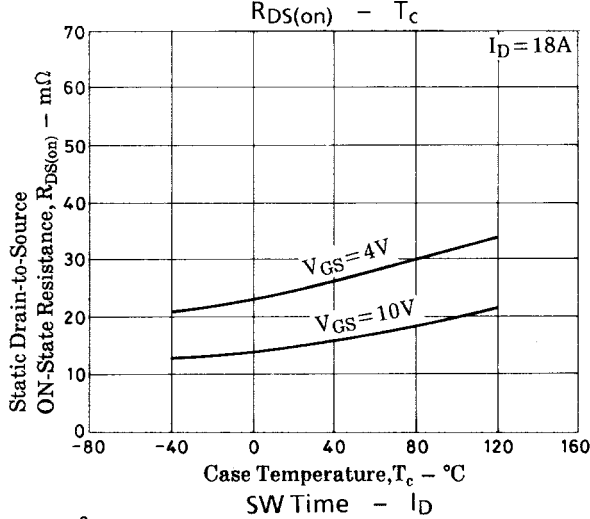
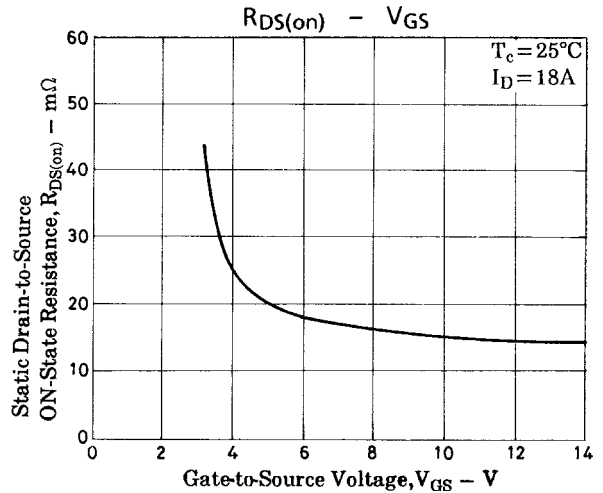
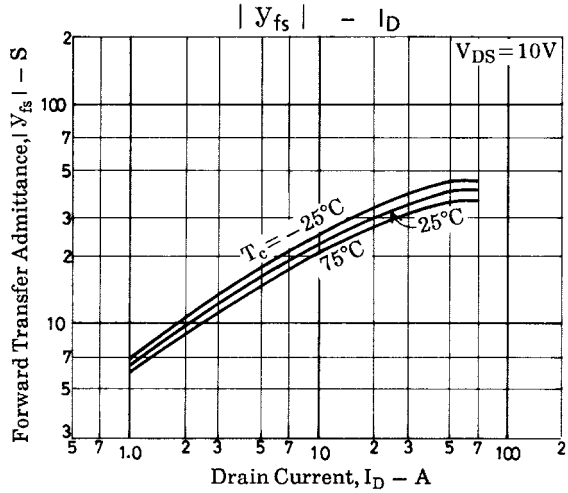
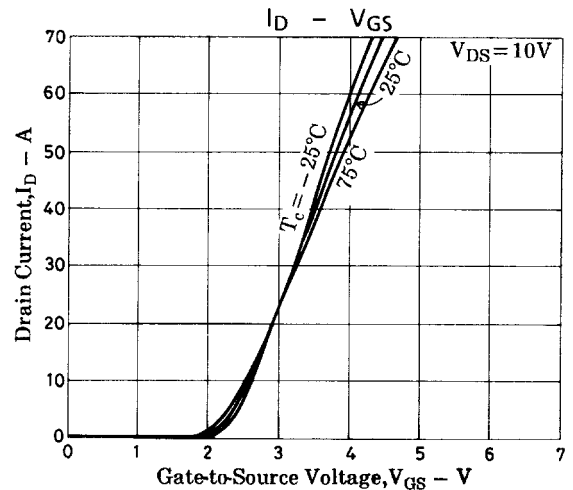
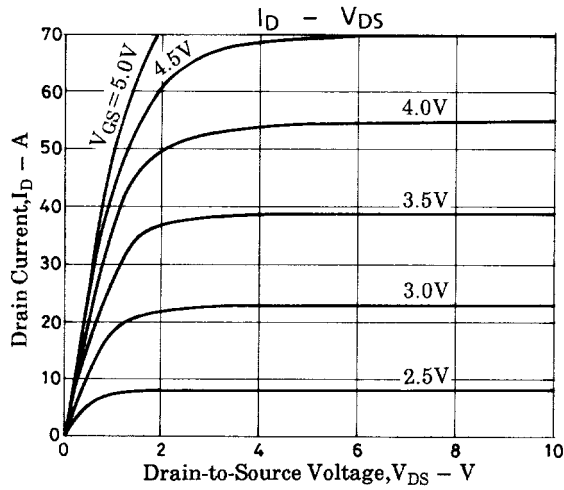
Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		30	V
Gate-to-Source Voltage	V_{GSS}		±15	V
Drain Current (DC)	I_D		35	A
Drain Current (Pulse)	I_{DP}	$PW \leq 10\mu s$, duty cycle $\leq 1\%$	140	A
Allowable Power Dissipation	P_D		1.65	W
		$T_c = 25^\circ C$	70	W
Channel Temperature	T_{ch}		150	°C
Storage Temperature	T_{stg}		-55 to +150	°C

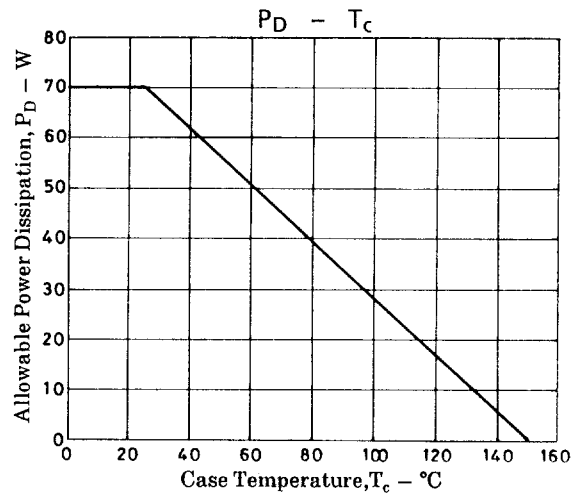
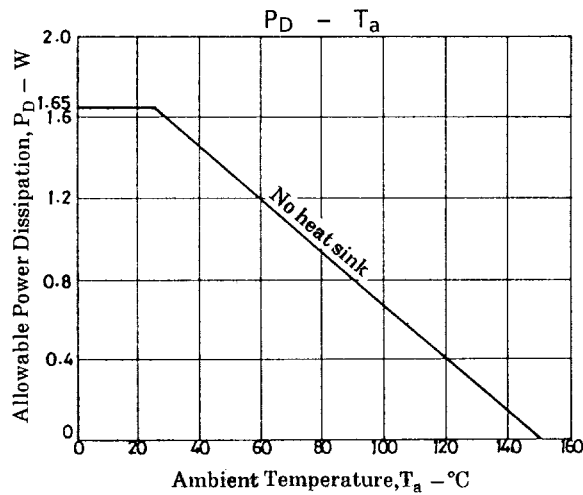
Electrical Characteristics at Ta = 25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = 1mA$, $V_{GS} = 0$	30			V
Gate-to-Source Breakdown Voltage	$V_{(BR)GSS}$	$I_G = \pm 100\mu A$, $V_{DS} = 0$	±15			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 30V$, $V_{GS} = 0$			100	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS} = \pm 12V$, $V_{DS} = 0$			±10	μA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS} = 10V$, $I_D = 1mA$			2.0	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS} = 10V$, $I_D = 18A$	17.5	29		S
Static Drain-to-Source ON-State Resistance	$R_{DS(on)}$	$I_D = 18A$, $V_{GS} = 10V$		15	25	mΩ
	$R_{DS(on)}$	$I_D = 18A$, $V_{GS} = 4V$		25	35	mΩ
Input Capacitance	C_{iss}	$V_{DS} = 10V$, $f = 1MHz$		2000		pF
Output Capacitance	C_{oss}	$V_{DS} = 10V$, $f = 1MHz$		1100		pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS} = 10V$, $f = 1MHz$		360		pF
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit		15		ns
Rise Time	t_r	See specified Test Circuit		40		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit		380		ns
Fall Time	t_f	See specified Test Circuit		370		ns
Diode Forward Voltage	V_{SD}	$I_S = 35A$, $V_{GS} = 0$		1.0	1.5	V

Switching Time Test Circuit







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