

**2SK1890**

## Ultrahigh-Speed Switching Applications

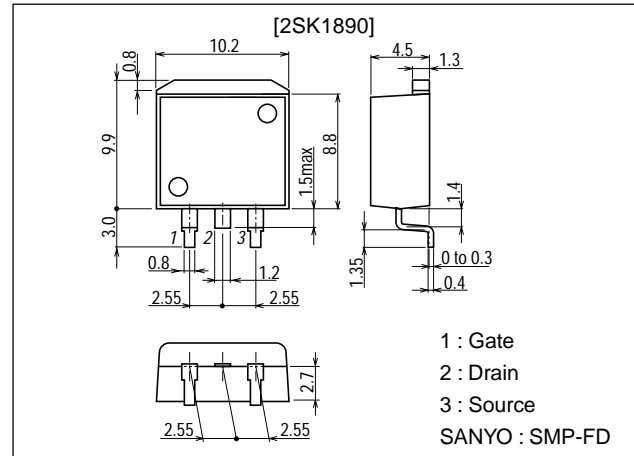
### Features

- 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 2SK1890-applied equipment.
  - High-density surface mount applications.
  - Small size of 2SK1890-applied equipment.

### Package Dimensions

unit:mm

2090A



### Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	$V_{DS}$		30	V
Gate-to-Source Voltage	$V_{GS}$		$\pm 20$	V
Drain Current (DC)	$I_D$		22	A
Drain Current (Pulse)	$I_{DP}$	$PW \leq 10\mu s$ , duty cycle $\leq 1\%$	88	A
Allowable Power Dissipation	$P_D$		1.65	W
		$T_c = 25^\circ C$	60	W
Channel Temperature	$T_{ch}$		150	$^\circ C$
Storage Temperature	$T_{stg}$		-55 to +150	$^\circ C$

#### 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	$V_{(BR)GSS}$	$I_G = \pm 100\mu A$ , $V_{DS} = 0$	$\pm 20$			V
Zero-Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = 30V$ , $V_{GS} = 0$			100	$\mu A$
Gate-to-Source Leakage Current	$I_{GSS}$	$V_{GS} = \pm 16V$ , $V_{DS} = 0$			$\pm 10$	$\mu A$
Cutoff Voltage	$V_{GS(off)}$	$V_{DS} = 10V$ , $I_D = 1mA$	1.0		2.0	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS} = 10V$ , $I_D = 11A$	9	15		S
Static Drain-to-Source ON-State Resistance	$R_{DS(on)}$	$I_D = 11A$ , $V_{GS} = 10V$		0.030	0.040	$\Omega$
	$R_{DS(on)}$	$I_D = 11A$ , $V_{GS} = 4V$		0.040	0.055	$\Omega$

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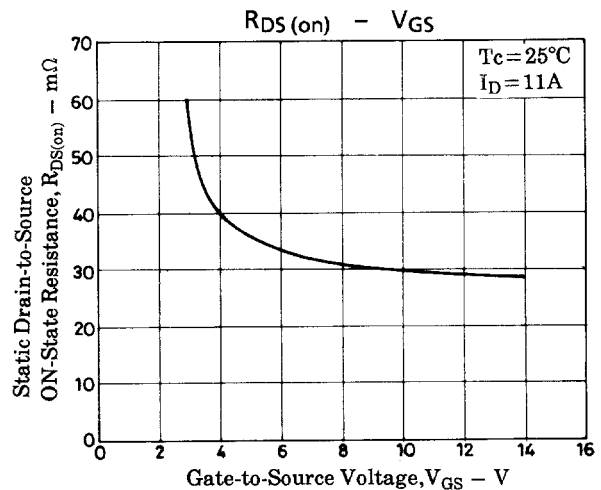
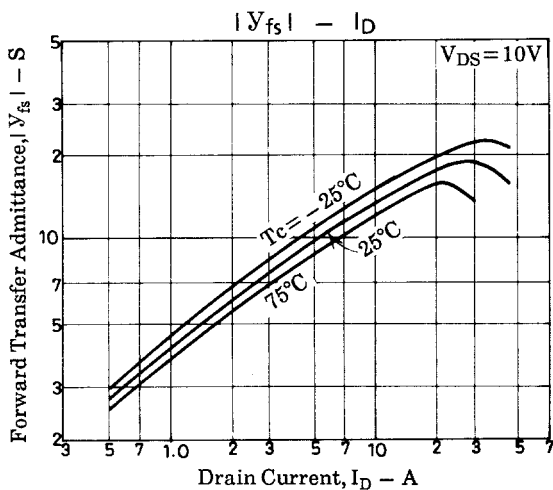
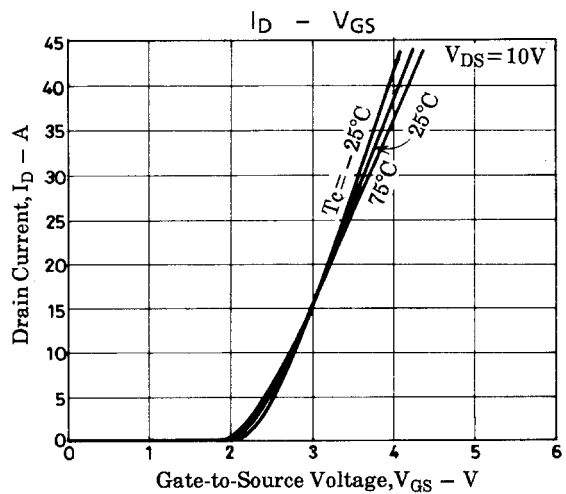
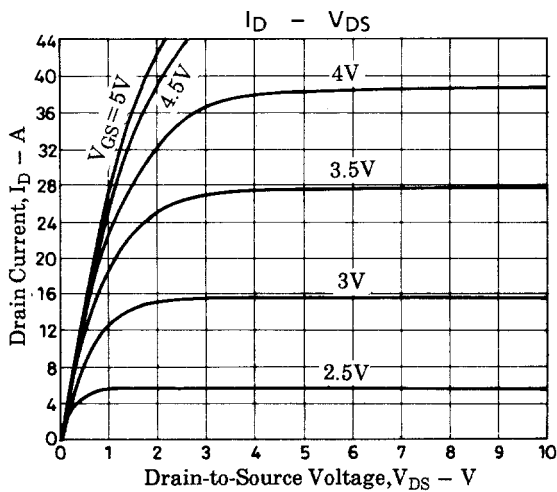
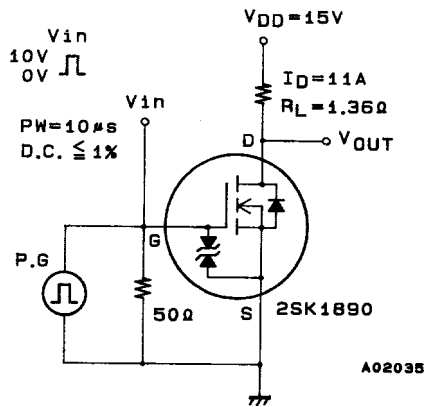
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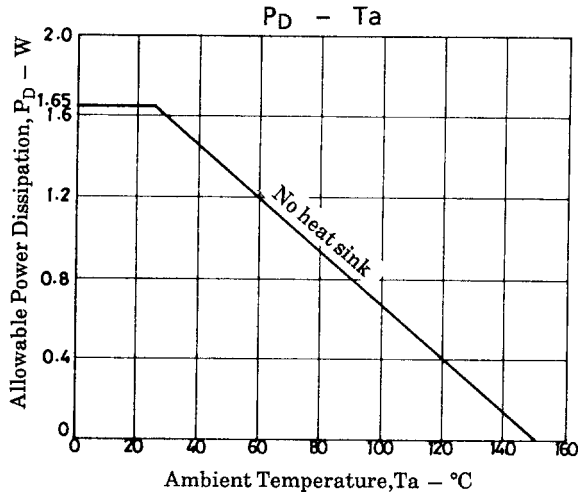
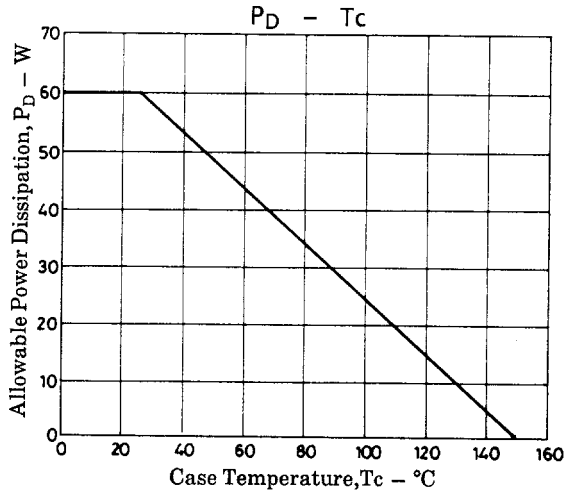
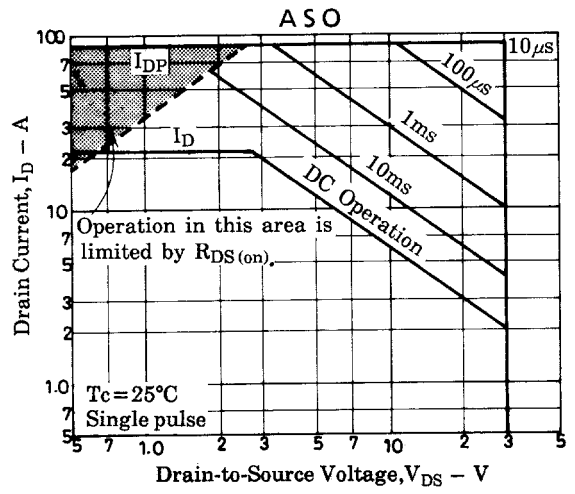
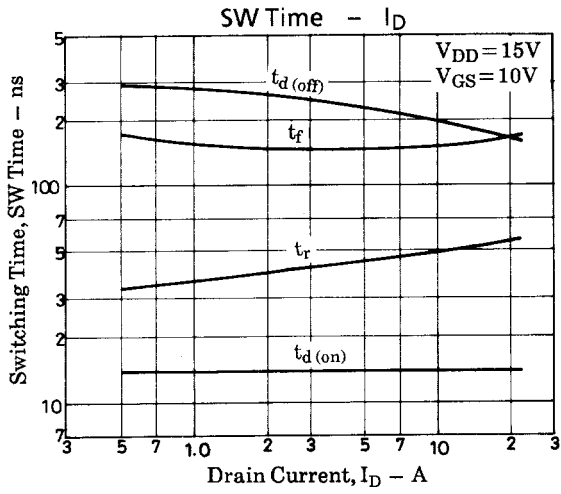
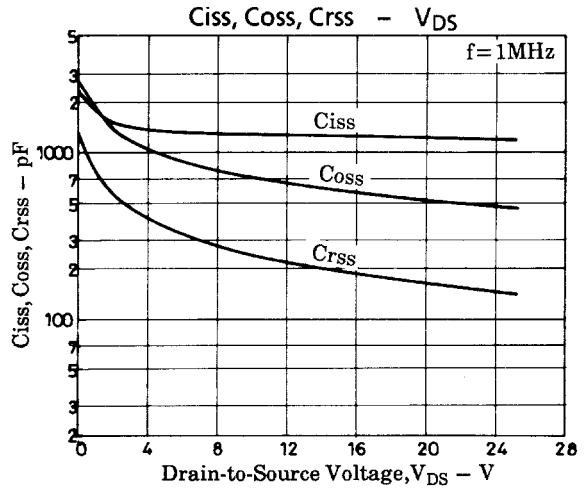
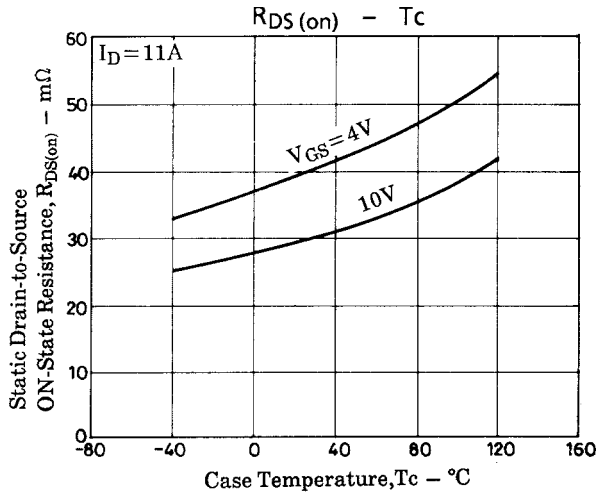
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	$C_{iss}$	$V_{DS}=10V, f=1MHz$		1300		pF
Output Capacitance	$C_{oss}$	$V_{DS}=10V, f=1MHz$		720		pF
Reverse Transfer Capacitance	$C_{rss}$	$V_{DS}=10V, f=1MHz$		240		pF
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit		14		ns
Rise Time	$t_r$	See specified Test Circuit		50		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit		290		ns
Fall Time	$t_f$	See specified Test Circuit		150		ns
Diode Forward Voltage	$V_{SD}$	$I_S=22A, V_{GS}=0$		1.0	1.5	V

## Switching Time Test Circuit



# 2SK1890



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