Ordering number:EN4205

N-Channel Silicon MOSFET

2SK1889

Ultrahigh-Speed Switching Applications

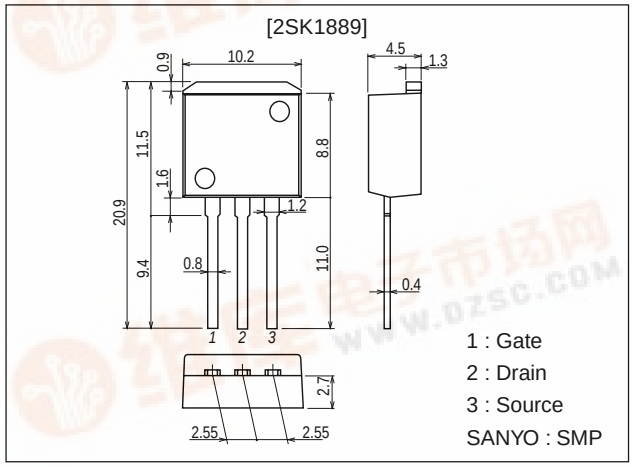
Features

- 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 2SK1889-applied equipment.
  - High density surface mount applications.
  - Small size of 2SK1889-applied equipment.

Package Dimensions

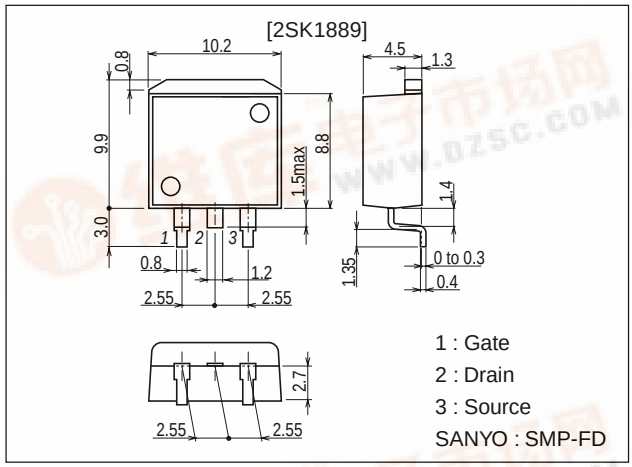
unit:mm

2093A



unit:mm

2090A



Specifications

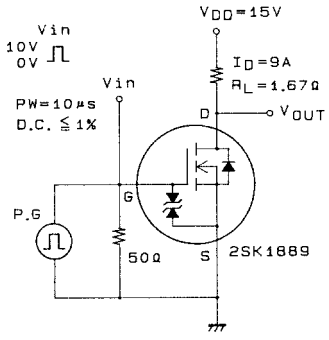
Absolute Maximum Ratings at Ta = 25˚C

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		18	A
Drain Current (Pulse)	I_{DP}	PW≤10μs, duty cycle≤1%	72	A
Allowable Power Dissipation	P_D		1.65	W
		Tc=25°C	50	W
Channel Temperature	Tch		150	˚C
Storage Temperature	Tstg		–55 to +150	˚C

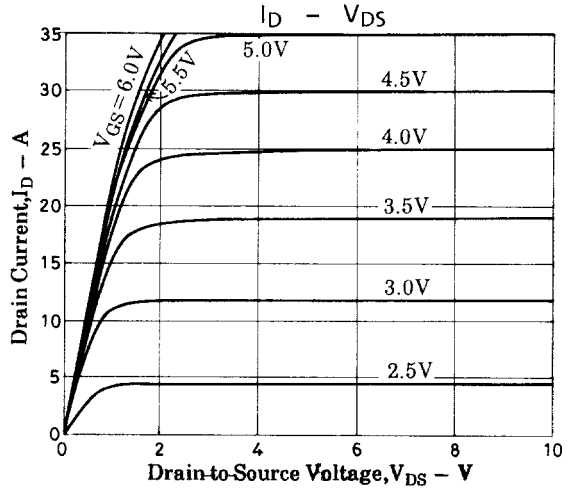
Electrical Characteristics at Ta = 25˚C

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=±100μA, 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}=±12V, V_{DS}=0			±10	μA
Cutoff Voltage	$V_{GS(off)}$	V_{DS}=10V, I_D=1mA	1.0		2.0	V
Forward Transfer Admittance	| yfs |	V_{DS}=10V, I_D=9A	7	11		S
Static Drain-to-Source ON-State Resistance	$R_{DS(on)}$	I_D=9A, V_{GS}=10V		40	55	mΩ
	$R_{DS(on)}$	I_D=9A, V_{GS}=4V		55	75	mΩ
Input Capacitance	Ciss	V_{DS}=10V, f=1MHz		1000		pF
Output Capacitance	Coss	V_{DS}=10V, f=1MHz		550		pF
Reverse Transfer Capacitance	Crss	V_{DS}=10V, f=1MHz		180		pF
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit		13		ns
Rise Time	t_r	See specified Test Circuit		60		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit		110		ns
Fall Time	t_f	See specified Test Circuit		125		ns
Diode Forward Voltage	V_{SD}	I_S=18A, V_{GS}=0		1.0	1.5	V

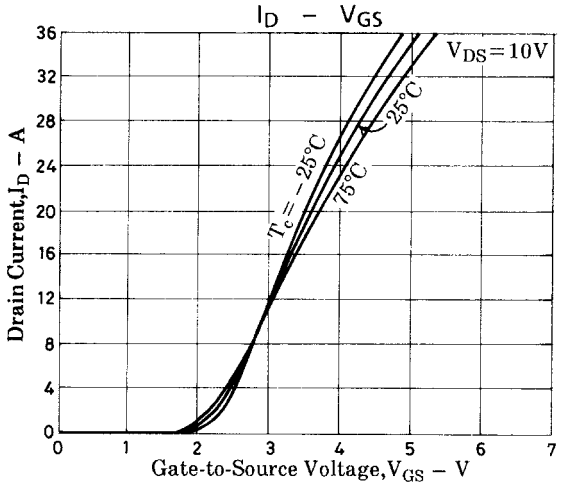
Switching Time Test Circuit



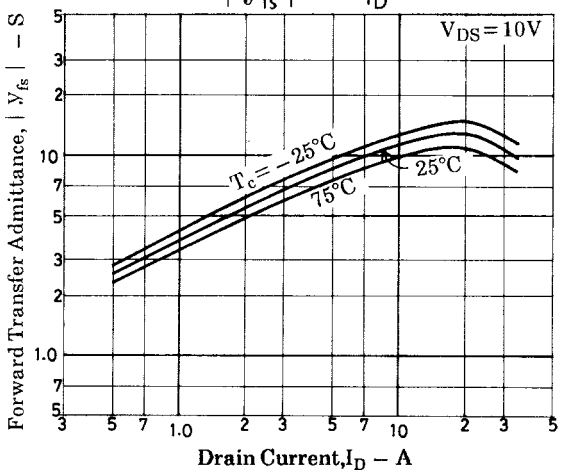
I_D – V_{DS}



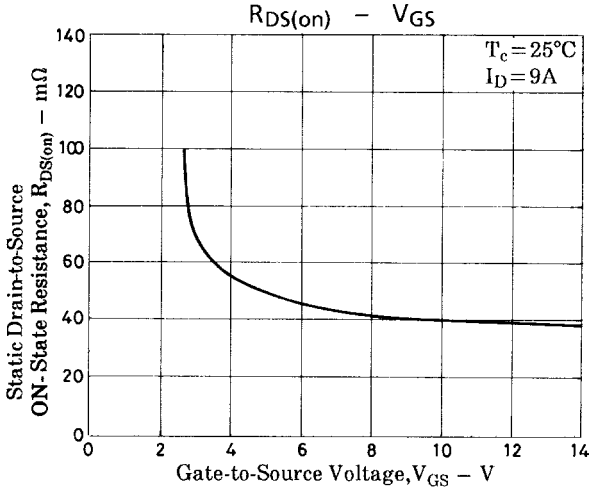
I_D – V_{GS}



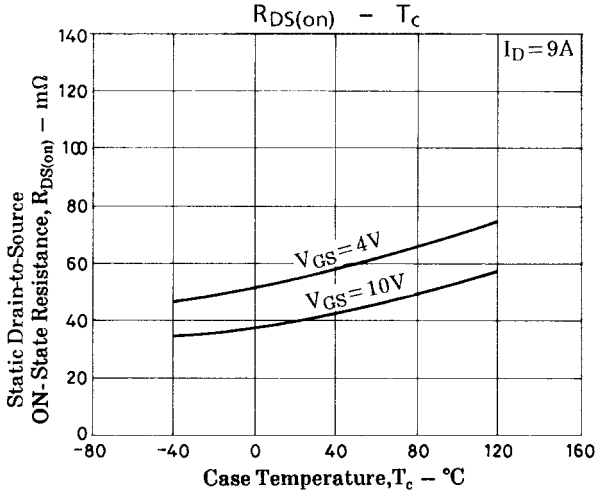
$|y_{fs}|$ – I_D



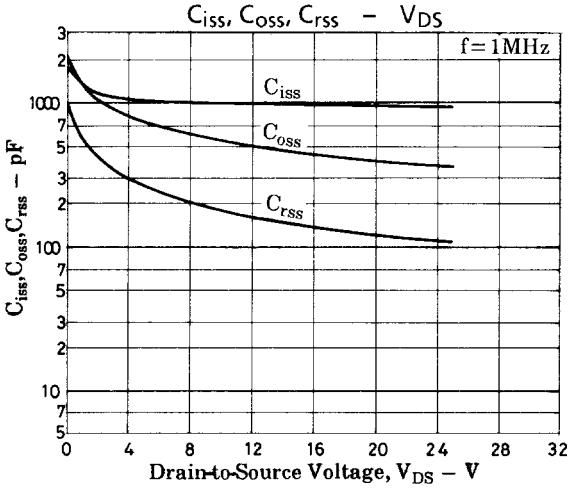
$R_{DS(on)}$ – V_{GS}



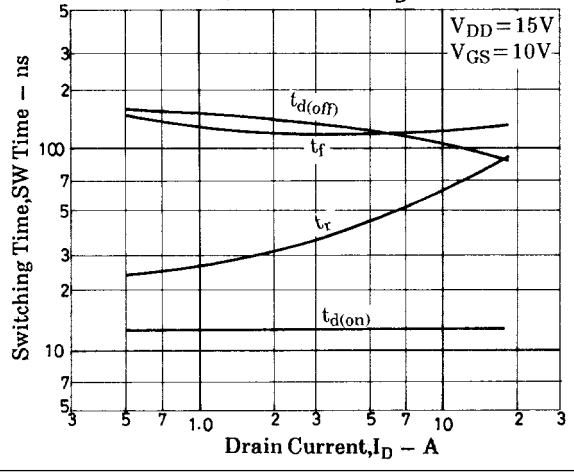
$R_{DS(on)}$ – T_c



C_{iss}, C_{oss}, C_{rss} – V_{DS}



SW Time – I_D



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