Ordering number:ENN4557

N-Channel Silicon MOSFET

2SK2199

Ultrahigh-Speed Switching Applications

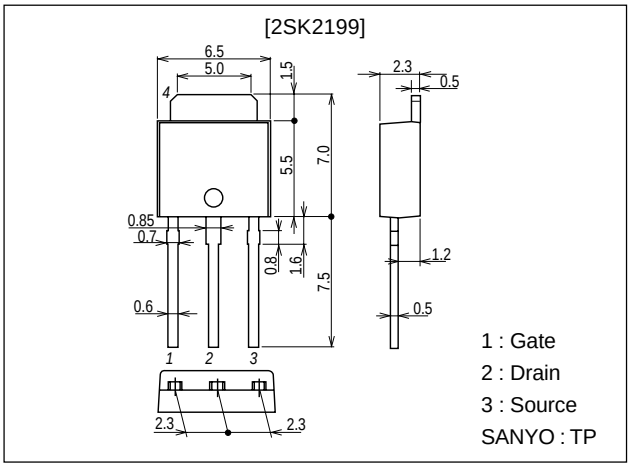
Features

- Low ON resistance.
- Ultrahigh-speed switching.
- Low-voltage drive.

Package Dimensions

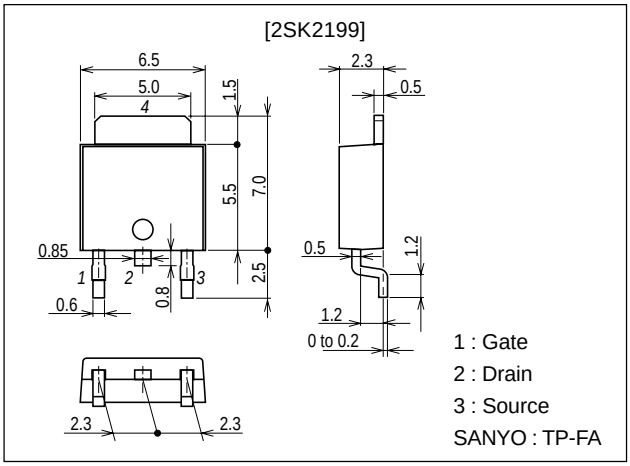
unit:mm

2083B



unit:mm

2092B



SANYO Electric Co.,Ltd. Semiconductor Company

TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

Specifications

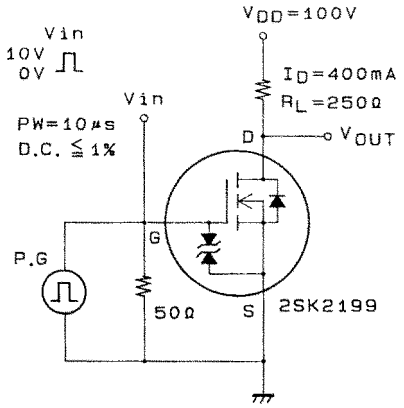
Absolute Maximum Ratings at Ta = 25˚C

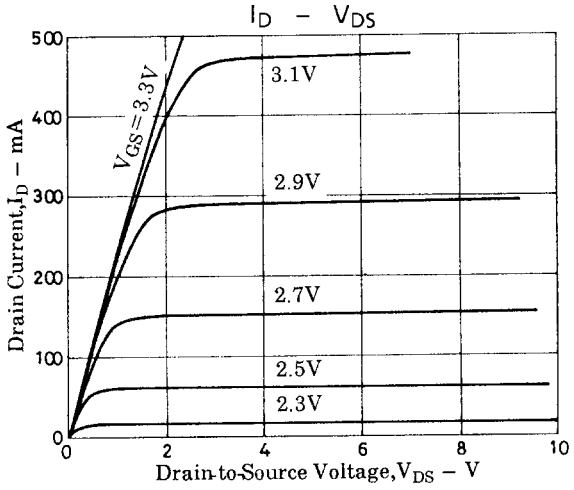
Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		250	V
Gate-to-Source Voltage	V_{GSS}		±20	V
Drain Current (DC)	I_D		800	mA
Drain Current (Pulse)	I_{DP}	PW≤10μs, duty cycle≤1%	3.2	A
Allowable Power Dissipation	P_D		1	W
		Tc=25°C	15	W
Channel Temperature	Tch		150	˚C
Storage Temperature	Tstg		–55 to +150	˚C

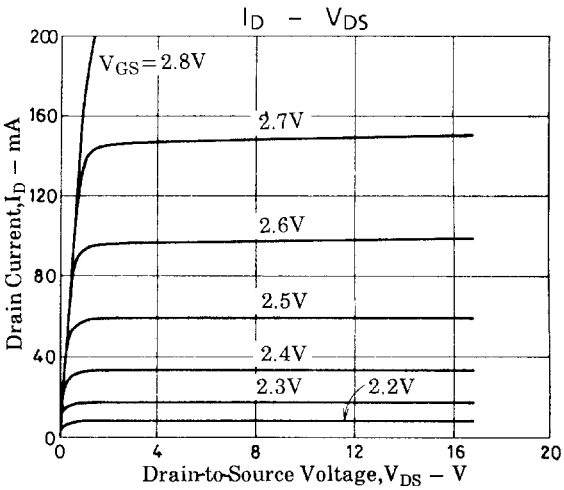
Electrical Characteristics at Ta = 25˚C

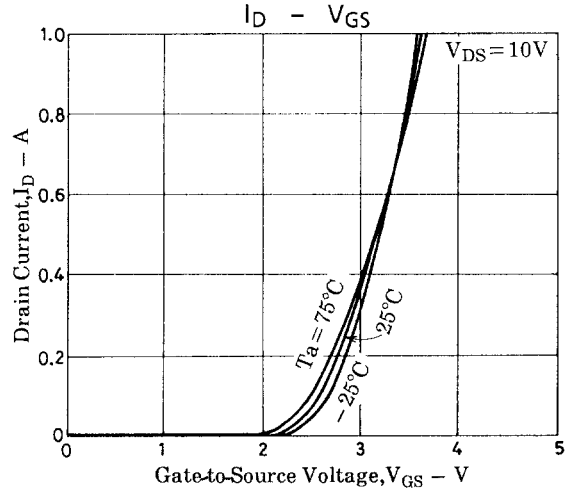
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	I_D=1mA, V_{GS}=0	250			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=250V, V_{GS}=0			100	μA
Gate-to-Source Leakage Current	I_{GSS}	V_{GS}=±18V, V_{DS}=0			±10	μA
Cutoff Voltage	$V_{GS(off)}$	V_{DS}=10V, I_D=1mA	1.5		2.5	V
Forward Transfer Admittance	| yfs |	V_{DS}=10V, I_D=400mA	0.6	0.9		S
Static Drain-to-Source ON-State Resistance	$R_{DS(on)}$	I_D=400mA, V_{GS}=10V		3.5	5	Ω
Input Capacitance	Ciss	V_{DS}=20V, f=1MHz		80		pF
Output Capacitance	Coss	V_{DS}=20V, f=1MHz		20		pF
Reverse Transfer Capacitance	Crss	V_{DS}=20V, f=1MHz		8		pF
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit		10		ns
Rise Time	t_r	See specified Test Circuit		10		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit		65		ns
Fall Time	t_f	See specified Test Circuit		30		ns
Diode Forward Voltage	V_{SD}	I_S=800mA, V_{GS}=0		1.0		V

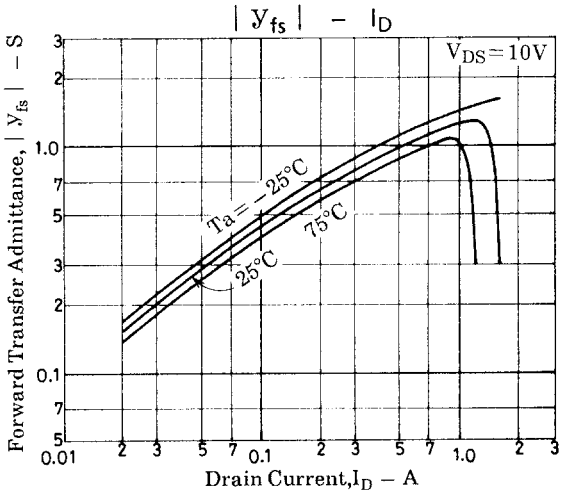
Switching Time Test Circuit

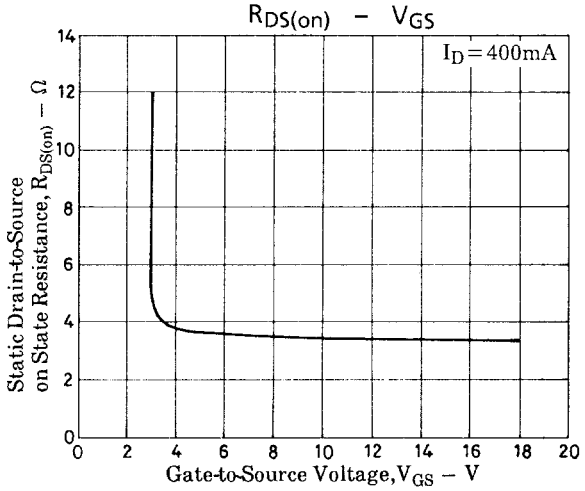


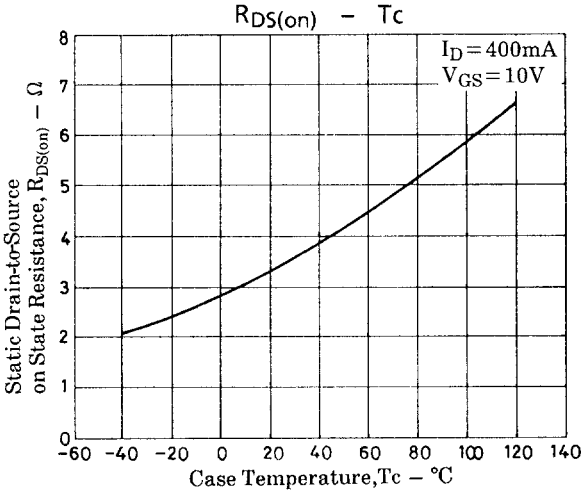

I_D – V_{DS}
V_{GS}=3.3V
3.1V
2.9V
2.7V
2.5V
2.3V
Drain Current, I_D – mA
Drain-to-Source Voltage, V_{DS} – V

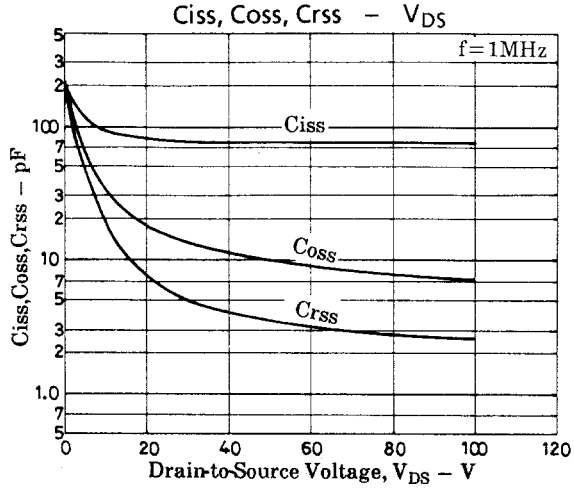

I_D – V_{DS}
V_{GS}=2.8V
2.7V
2.6V
2.5V
2.4V
2.3V
2.2V
Drain Current, I_D – mA
Drain-to-Source Voltage, V_{DS} – V

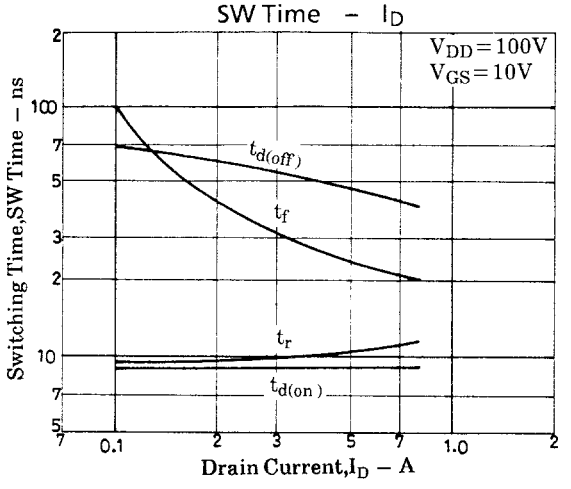

I_D – V_{GS}
V_{DS}=10V
Ta=75°C
25°C
–25°C
Drain Current, I_D – A
Gate-to-Source Voltage, V_{GS} – V


| y_{fs} | – I_D
V_{DS}=10V
Ta=–25°C
75°C
25°C
Forward Transfer Admittance, | y_{fs} | – S
Drain Current, I_D – A


$R_{DS(on)}$ – V_{GS}
I_D=400mA
Static Drain-to-Source on State Resistance, $R_{DS(on)}$ – Ω
Gate-to-Source Voltage, V_{GS} – V


$R_{DS(on)}$ – Tc
I_D=400mA
V_{GS}=10V
Static Drain-to-Source on State Resistance, $R_{DS(on)}$ – Ω
Case Temperature, Tc – °C


Ciss, Coss, Crss – V_{DS}
f=1MHz
Ciss
Coss
Crss
Ciss, Coss, Crss – pF
Drain-to-Source Voltage, V_{DS} – V


SW Time – I_D
V_{DD}=100V
V_{GS}=10V
$t_{d(off)}$
t_f
t_r
$t_{d(on)}$
Switching Time, SW Time – ns
Drain Current, I_D – A