Ordering number:EN5851

N Channel Silicon MOSFET

2SK2859

Ultrahigh-Speed Switching Applications

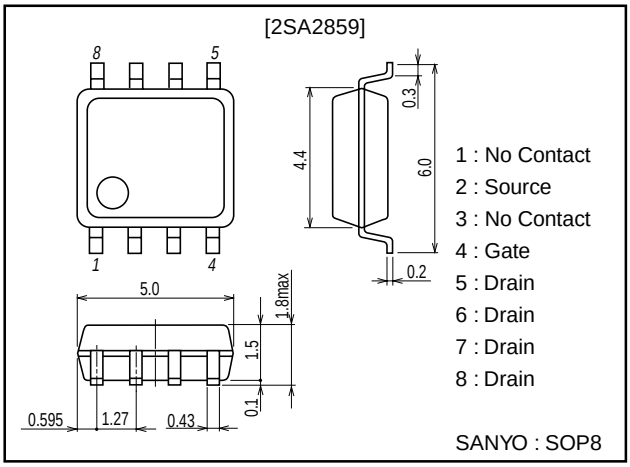
Features

- Low On resistance.
- Ultrahigh-speed switching.
- 4V drive.

Package Dimensions

unit:mm

2149



Specifications

Absolute Maximum Ratings at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		100	V
Gate-to-Source Voltage	V_{GSS}		±15	V
Drain Current (DC)	I_D		2	A
Drain Current (Pulse)	I_{DP}	PW≤10μs, duty cycle≤1%	8	A
Allowable Power Dissipation	P_D		1.6	W
Channel Temperature	Tch		150	˚C
Storage Temperature	Tstg	Mounted on a ceramic board (1000^2×0.8mm)	–55 to +150	˚C

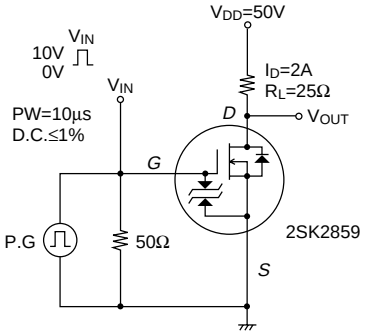
SANYO Electric Co.,Ltd. Semiconductor Bussiness Headquaters

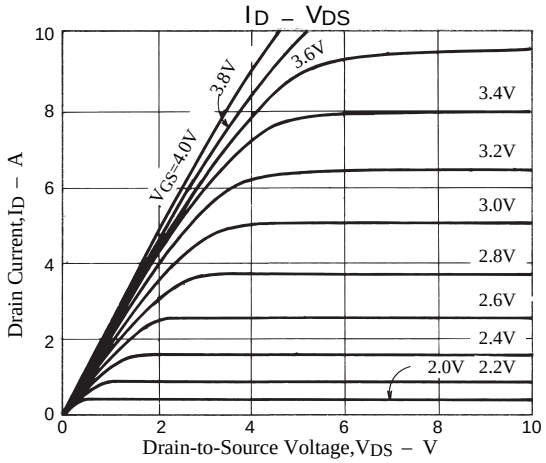
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

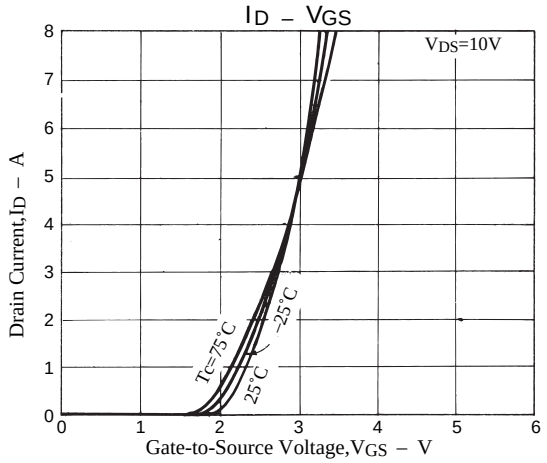
Electrical Characteristics at Ta = 25˚C

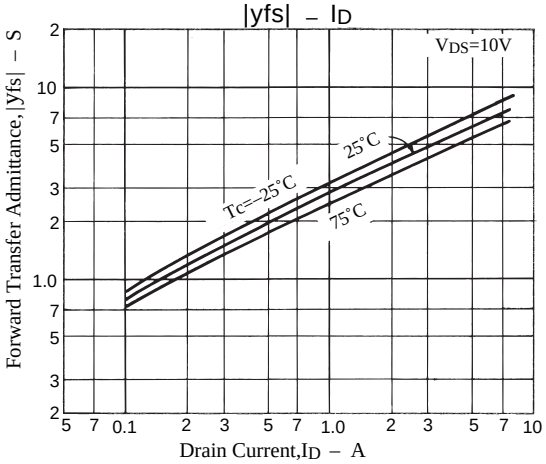
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	I_D=1mA, V_{GS}=0	100			V
Drain-to-Source Cutoff Current	I_{DSS}	V_{DS}=100V, V_{GS}=0			100	μA
Gate-to-Souce Leakage Current	I_{GSS}	V_{GS}=±12V, V_{DS}=0			±10	μA
Gate-to-Souce Cutoff Voltage	$V_{GS(off)}$	V_{DS}=10V, I_D=1mA	1.0		2.0	V
Forward Transfer Admittance	| yfs |	V_{DS}=10V, I_D=2A	2.5	4		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)}1$	I_D=2A, V_{GS}=10V		0.3	0.4	Ω
	$R_{DS(on)}2$	I_D=2A, V_{GS}=4V		0.4	0.55	Ω
Input Capacitance	Ciss	V_{DS}=20V, f=1MHz		380		pF
Output Capacitance	Coss	V_{DS}=20V, f=1MHz		80		pF
Reverse Transfer Capacitance	Crss	V_{DS}=20V, f=1MHz		15		pF
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit		10		ns
Rise Time	t_r	See specified Test Circuit		13		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit		70		ns
Fall Time	t_f	See specified Test Circuit		30		ns
Diode Forward Voltafe	V_{SD}	I_S=2A, V_{GS}=0		1.0	1.2	V

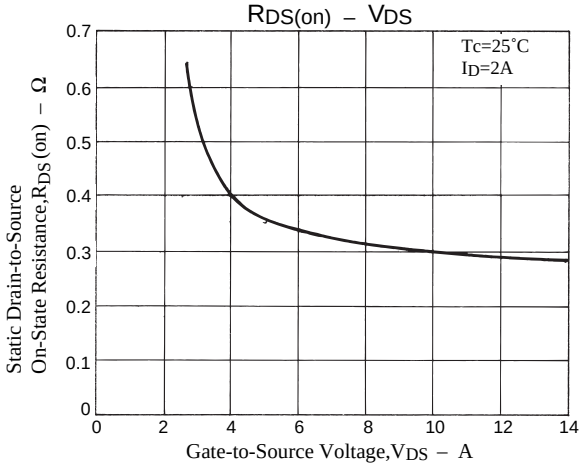
Switching Time Test Circuit

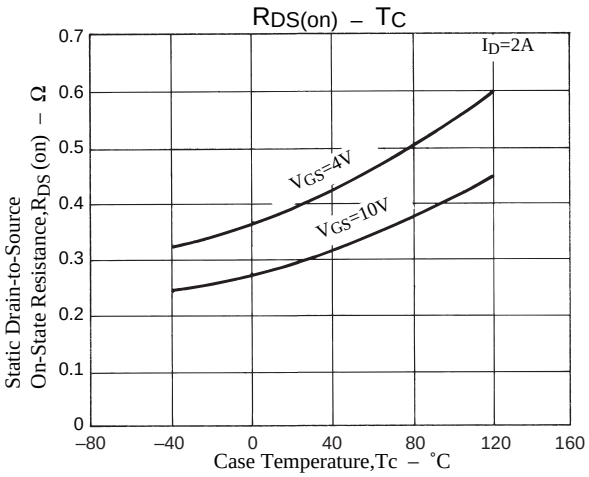


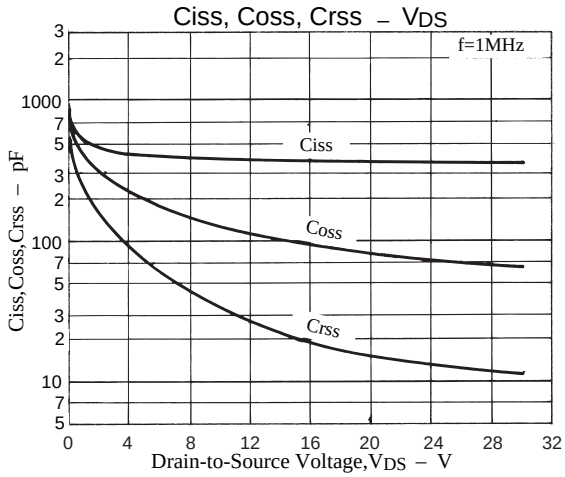


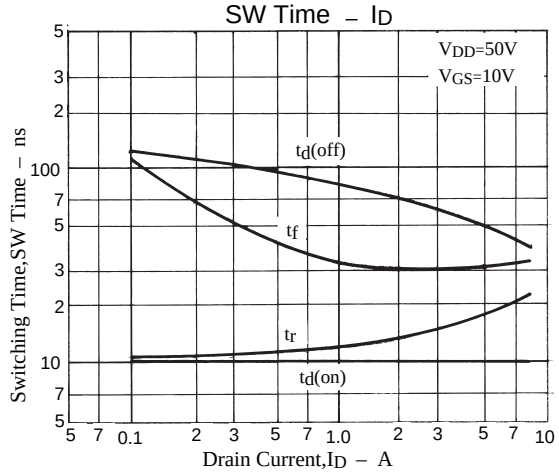


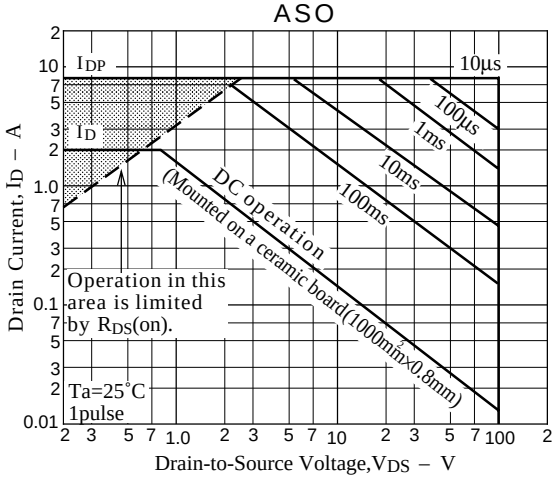


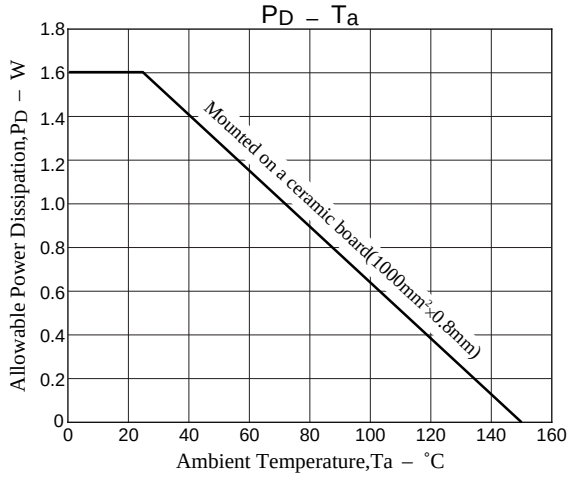



RDS(on) – Tc
ID=2A
VGS=4V
VGS=10V
Static Drain-to-Source On-State Resistance,RDS(on) – Ω
Case Temperature,Tc – ˚C


Ciss, Coss, Crss – VDS
f=1MHz
Ciss
Coss
Crss
Ciss,Coss,Crss – pF
Drain-to-Source Voltage,VDS – V


SW Time – ID
VDD=50V
VGS=10V
td(off)
tf
tr
td(on)
Switching Time,SW Time – ns
Drain Current,ID – A


ASO
IDP
ID
10μs
100μs
1ms
10ms
100ms
DC operation
(Mounted on a ceramic board(1000mm²×0.8mm))
Operation in this area is limited by RDS(on).
Ta=25˚C
1pulse
Drain Current, ID – A
Drain-to-Source Voltage,VDS – V


PD – Ta
Mounted on a ceramic board(1000mm²×0.8mm)
Allowable Power Dissipation,PD – W
Ambient Temperature,Ta – ˚C