Ordering number:ENN4314

N-Channel Silicon MOSFET

2SK1925

Ultrahigh-Speed Switching Applications

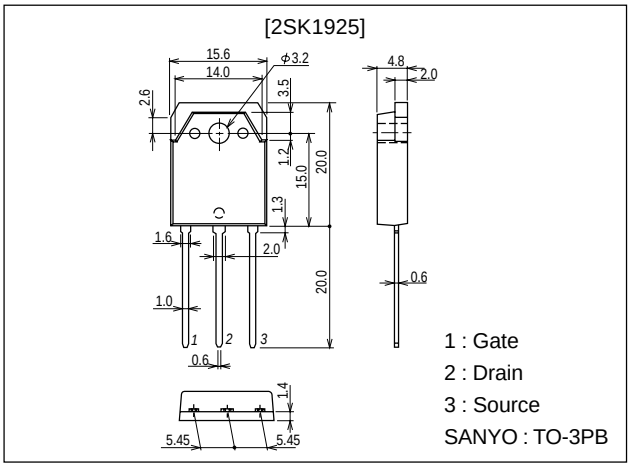
Features

- Low ON resistance.
- Ultrahigh-speed switching.
- High-speed diode (trr=150ns).

Package Dimensions

unit:mm

2056A



Specifications

Absolute Maximum Ratings at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		600	V
Gate-to-Source Voltage	V_{GSS}		±30	V
Drain Current (DC)	I_D		8	A
Drain Current (pulse)	I_{DP}		32	A
Allowable Power Dissipation	P_D		2.5	W
		Tc=25°C	120	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_{DSS}	I_D=10mA, V_{GS}=0	600			V
Zero-Gate Votlage Drain Current	I_{DSS}	V_{DS}=480V, V_{GS}=0			1.0	mA
Gate-to-Source Leakage Current	I_{GSS}	V_{GS}=±30V, V_{DS}=0			±100	nA
Cutoff Voltage	$V_{GS(off)}$	V_{DS}=10V, I_D=1mA	2.0		3.0	V
Forward Transfer Admittance	| yfs |	V_{DS}=10V, I_D=4A	2.8	5.5		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)}$	I_D=4A, V_{GS}=10V		0.9	1.2	Ω

(Note) Be careful in handling the 2SK1925 because it has no protection diode between gate and source.

Continued on next page.

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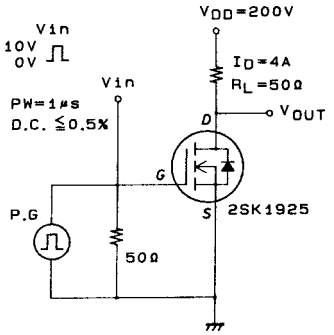
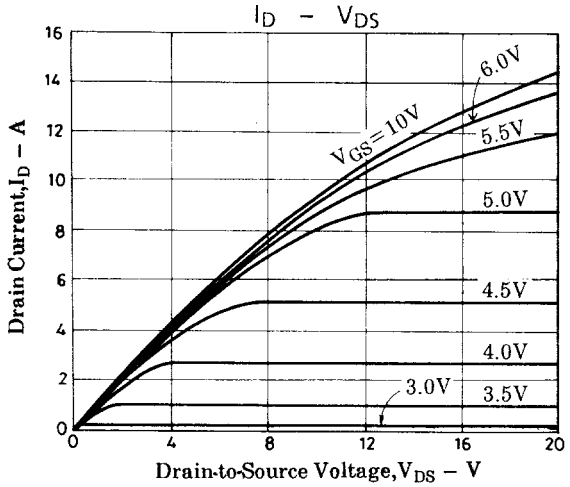
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

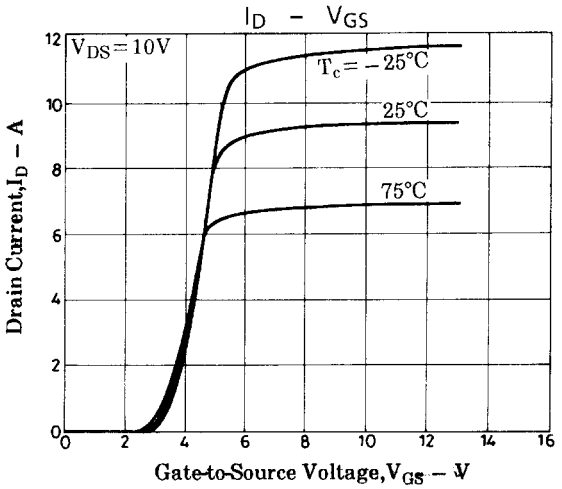
Continued from preceding page.

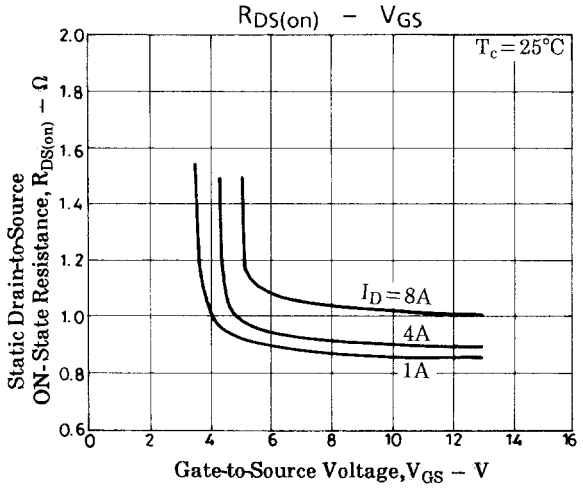
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss	V_{DS}=20V, f=1MHz		1500		pF
Output Capacitance	Coss	V_{DS}=20V, f=1MHz		190		pF
Reverse Transfer Capacitance	Crss	V_{DS}=20V, f=1MHz		50		pF
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		20		ns
Rise Time	t_r	See specified Test Circuit.		35		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit.		350		ns
Fall Time	t_f	See specified Test Circuit.		100		ns
Diode Forward Voltage	V_{SD}	I_S=8A, V_{GS}=0			1.5	V
Diode Reverse Recovery Time	trr	I_S=8A, di/dt=100A/μs		150		ns

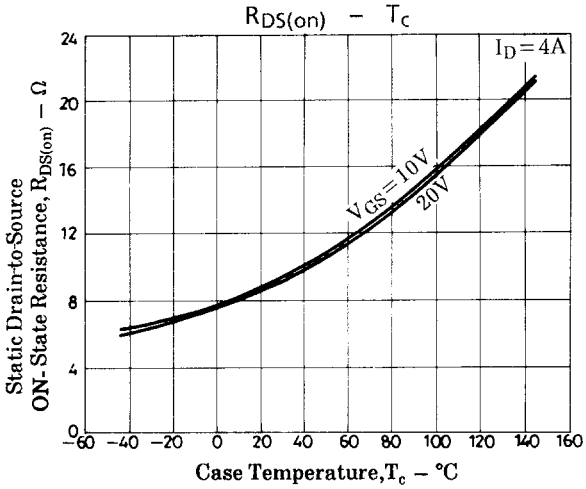
Switching Time Test Circuit

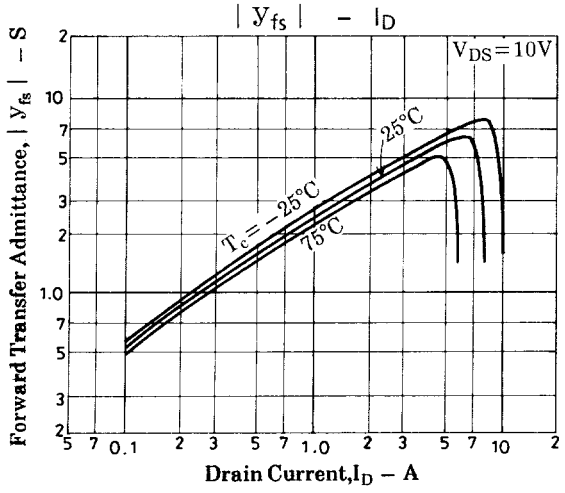


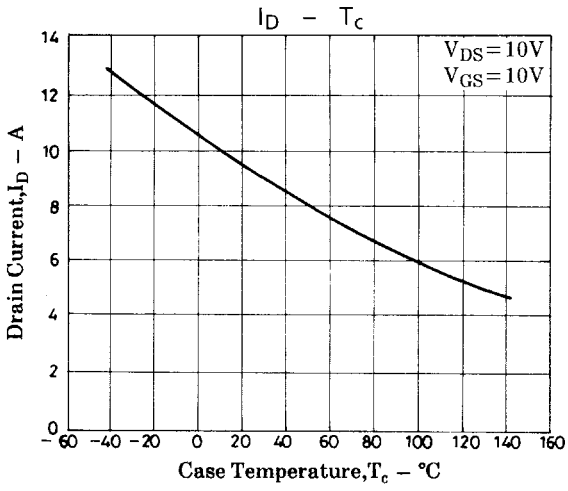


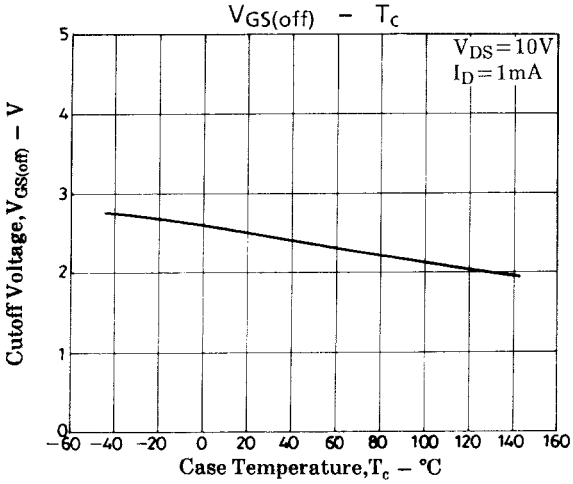


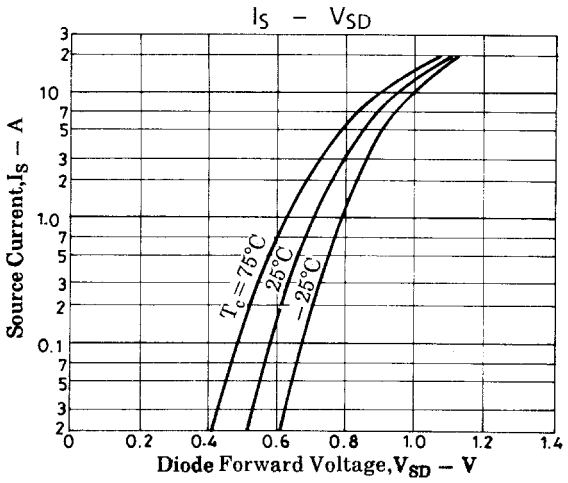


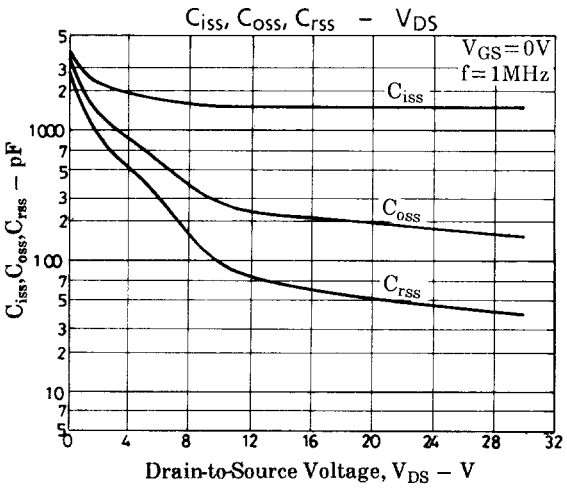


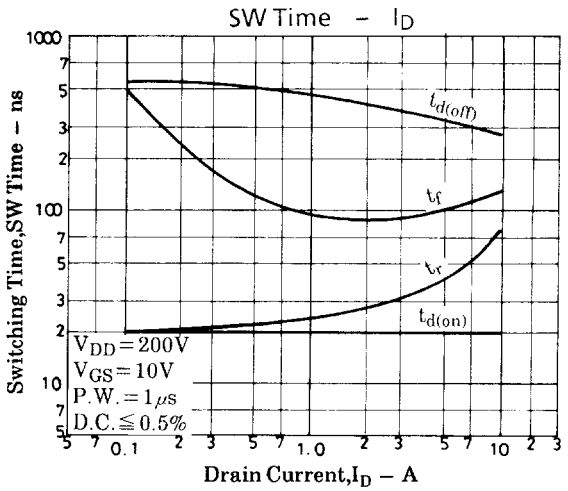

| yfs | – ID
VDS=10V
25°C
Tc=–25°C
75°C
Forward Transfer Admittance, | yfs | – S
Drain Current, ID – A

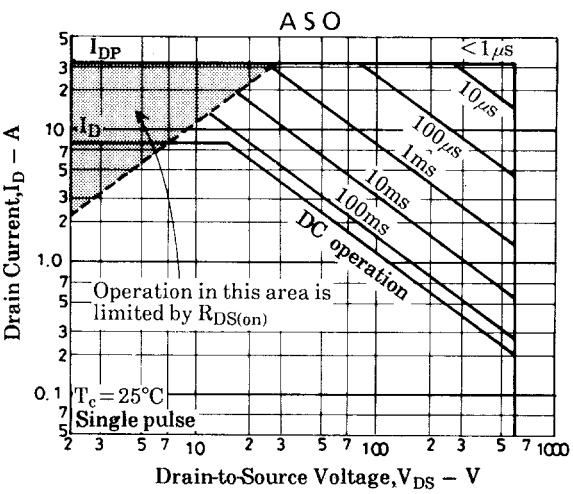

ID – Tc
VDS=10V
VGS=10V
Drain Current, ID – A
Case Temperature, Tc – °C

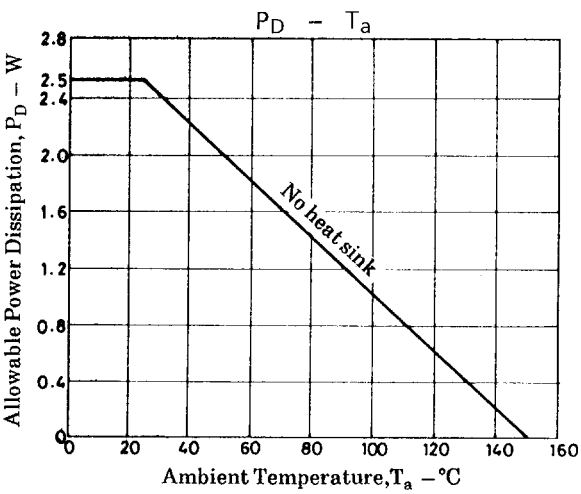

VGS(off) – Tc
VDS=10V
ID=1mA
Cutoff Voltage, VGS(off) – V
Case Temperature, Tc – °C


IS – VSD
Tc=75°C
25°C
–25°C
Source Current, IS – A
Diode Forward Voltage, VSD – V


Ciss, Coss, Crss – VDS
VGS=0V
f=1MHz
Ciss
Coss
Crss
Ciss, Coss, Crss – pF
Drain-to-Source Voltage, VDS – V


SW Time – ID
td(off)
tf
tr
td(on)
VDD=200V
VGS=10V
P.W.=1μs
D.C.≦0.5%
Switching Time, SW Time – ns
Drain Current, ID – A


ASO
IDP
ID
<1μs
10μs
100μs
1ms
10ms
100ms
DC operation
Operation in this area is limited by RDS(on)
Tc=25°C
Single pulse
Drain Current, ID – A
Drain-to-Source Voltage, VDS – V


PD – Ta
No heat sink
Allowable Power Dissipation, PD – W
Ambient Temperature, Ta – °C