Ordering number:ENN4601A

N-Channel Silicon MOSFET

2SK2161

Ultrahigh-Speed Switching Applications

Features

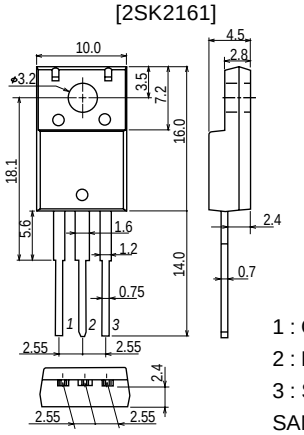
- Low ON resistance.
- Ultrahigh-speed switching.
- Low-voltage drive.
- Micaless package facilitating mounting.

Package Dimensions

unit:mm

2063A

[2SK2161]



1 : Gate
2 : Drain
3 : Source
SANYO : TO-220ML

Specifications

Absolute Maximum Ratings at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		200	V
Gate-to-Source Voltage	V_{GSS}		±20	V
Drain Current (DC)	I_D		9	A
Drain Current (Pulse)	I_{DP}	PW≤10μs, duty cycle≤1%	36	A
Allowable Power Dissipation	P_D		2.0	W
		Tc=25°C	25	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	200			V
Gate-to-Source Breakdown Voltage	$V_{(BR)GSS}$	I_G=±100μA, V_{DS}=0	±20			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=200V, V_{GS}=0			100	μA
Gate-to-Source Leakage Current	I_{GSS}	V_{GS}=±16V, 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=4.5 A	3.5	6		S
Static Drain-to-Source ON-State Resistance	$R_{DS(on)}$	I_D=4.5A, V_{GS}=10V		250	350	mΩ

Continued on next page.

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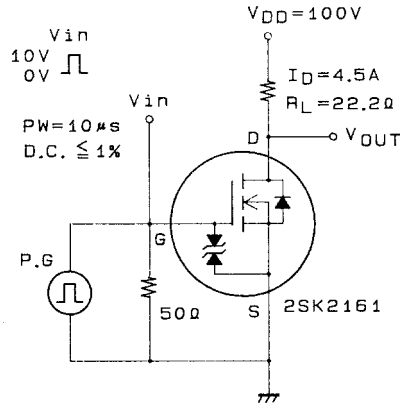
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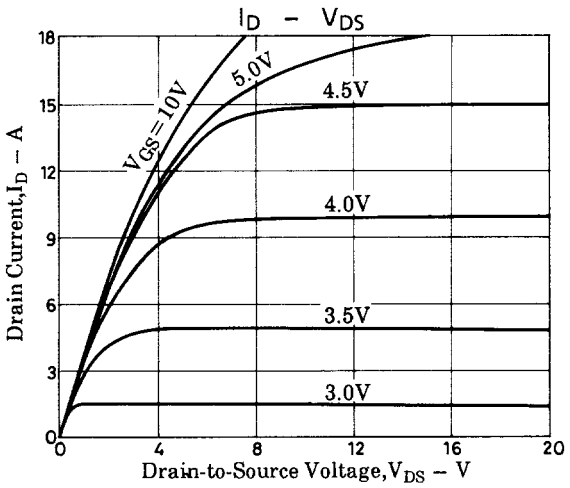
SANYO Electric Co.,Ltd. Semiconductor Company
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

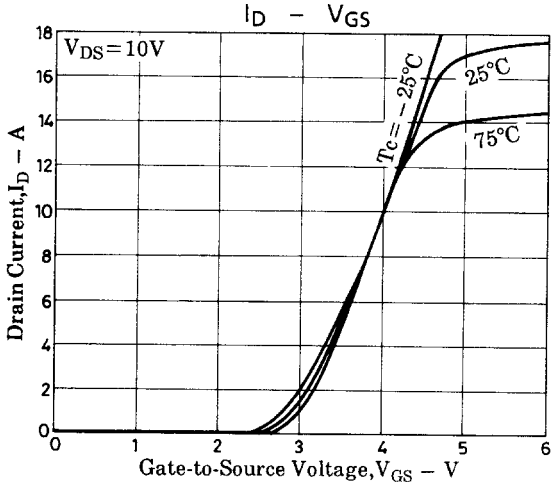
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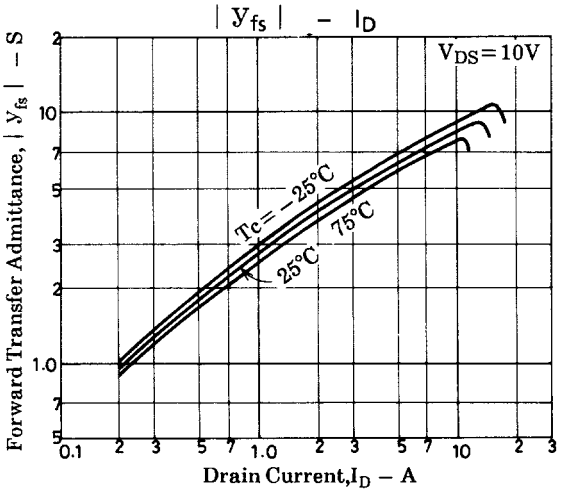
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss	V_{DS}=20V, f=1MHz		700		pF
Output Capacitance	Coss	V_{DS}=20V, f=1MHz		140		pF
Reverse Transfer Capacitance	Crss	V_{DS}=20V, f=1MHz		55		pF
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit		14		ns
Rise Time	t_r	See specified Test Circuit		19		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit		200		ns
Fall Time	t_f	See specified Test Circuit		80		ns
Diode Forward Voltage	V_{SD}	I_S=9A, V_{GS}=0		1.0	1.5	V

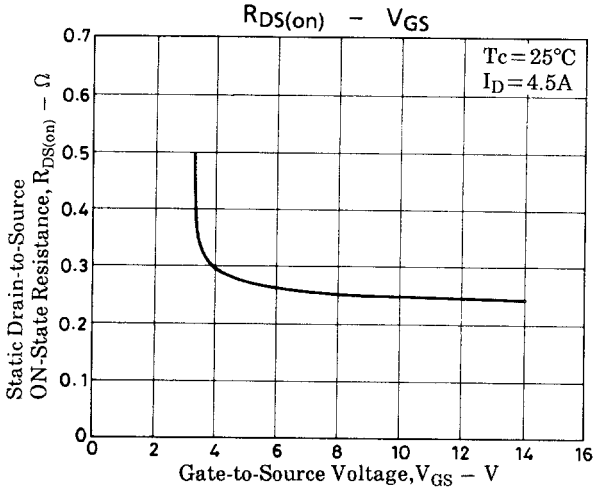
Switching Time Test Circuit

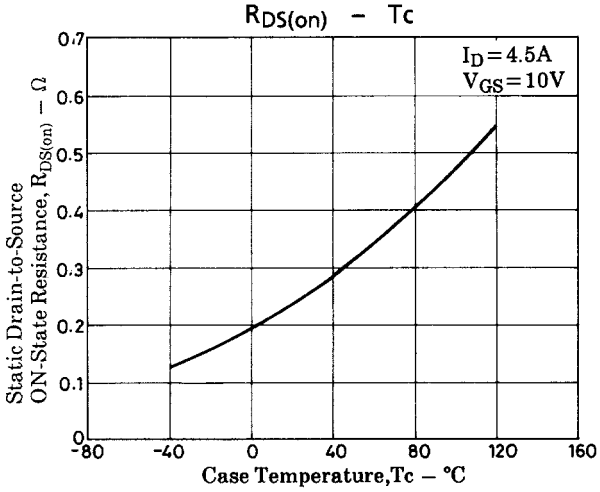


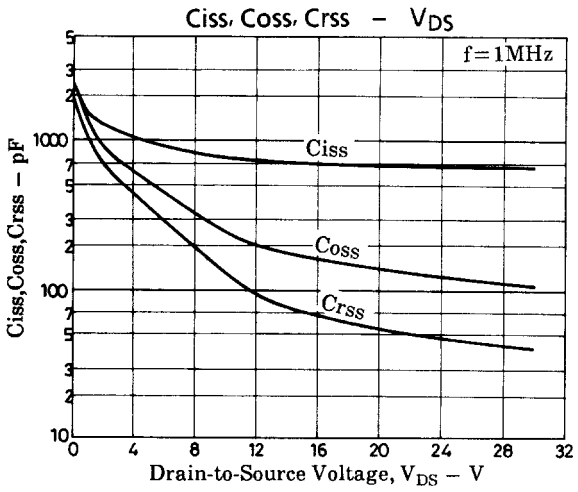


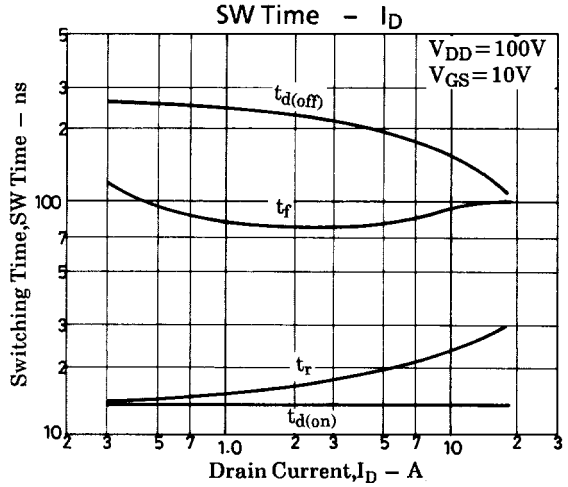


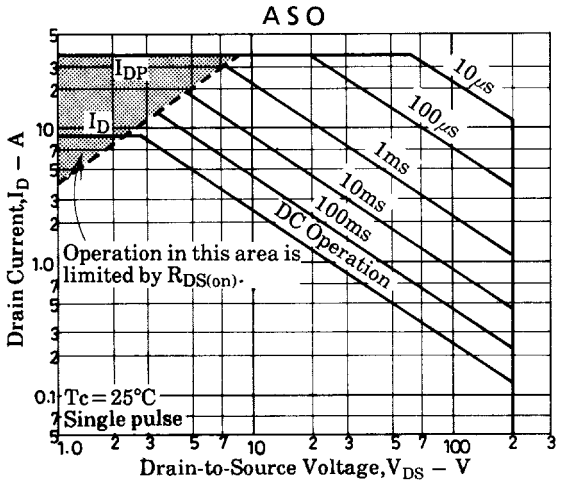


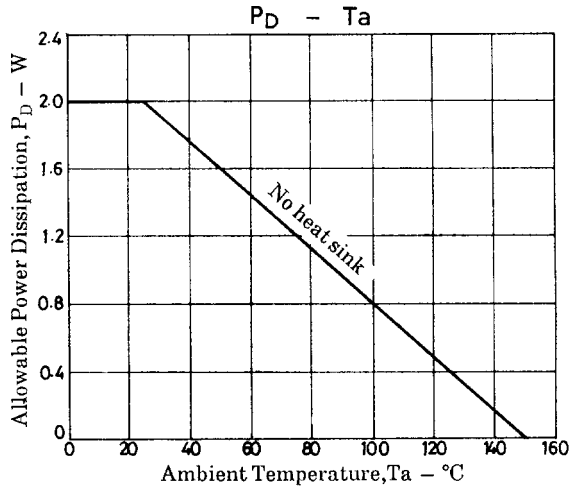


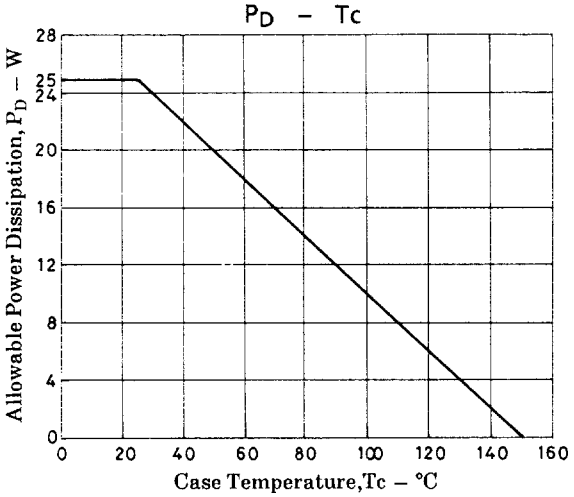

RDS(on) – Tc
ID=4.5A
VGS=10V
Static Drain-to-Source ON-State Resistance, RDS(on) – Ω
Case Temperature,Tc – °C


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


SW Time – ID
VDD=100V
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
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


PD – Tc
Allowable Power Dissipation, PD – W
Case Temperature,Tc – °C

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