Ordering number : ENN6600

N-Channel Silicon MOSFET

2SK2631

Ultrahigh-Speed Switching Applications

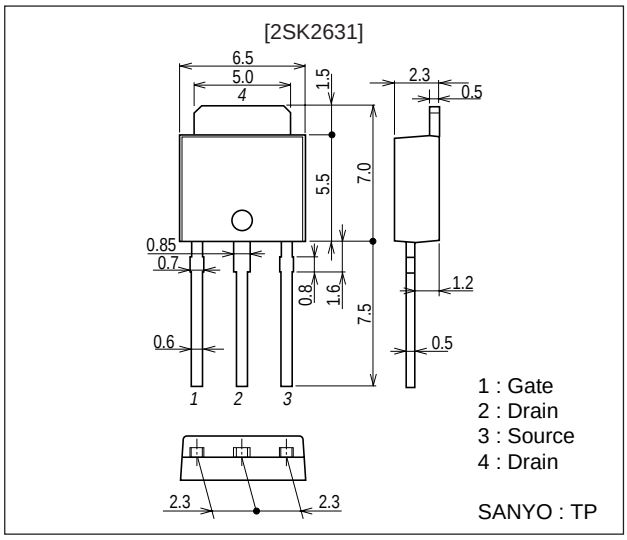
Features

- Low ON resistance.
- Smaller amount of total gate charge.

Package Dimensions

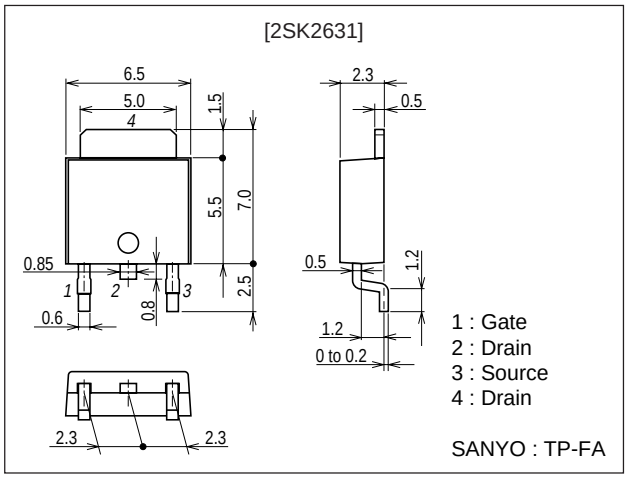
unit : mm

2083B



unit : mm

2092B



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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

Specifications

Absolute Maximum Ratings at Ta=25°C

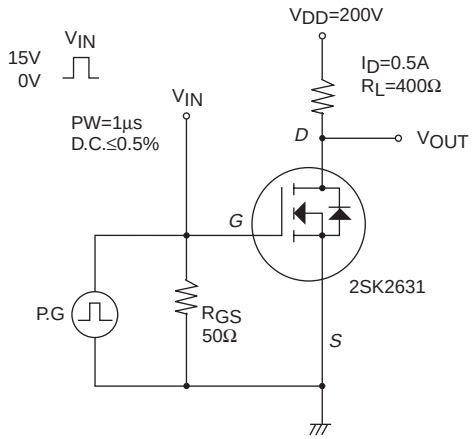
Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		800	V
Gate-to-Source Voltage	V_{GSS}		±30	V
Drain Current (DC)	I_D		1	A
Drain Current (Pulse)	I_{DP}	PW≤10μs, duty cycle≤1%	3	A
Allowable Power Dissipation	P_D	Tc=25°C	30	W
			1.0	W
Channel Temperature	Tch		150	°C
Storage Temperature	Tstg		−55 to +150	°C

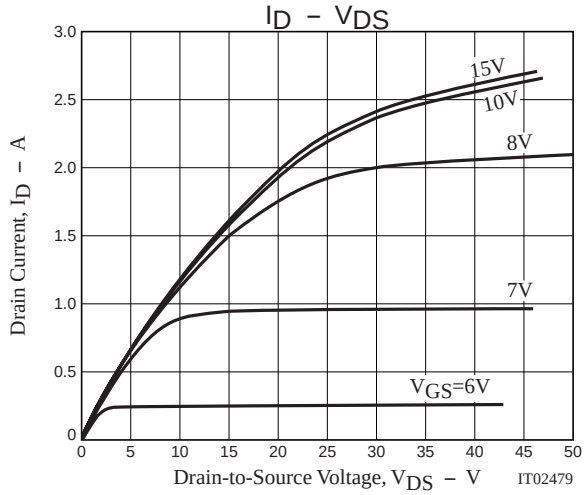
Electrical Characteristics at Ta=25°C

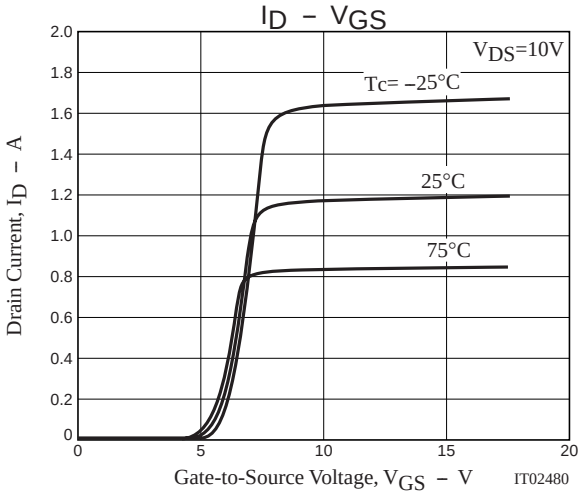
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	I_D=1mA, V_{GS}=0	800			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=800V, V_{GS}=0			1.0	mA
Gate-to-Source Leakage Current	I_{GSS}	V_{GS}=±30V, V_{DS}=0			±100	nA
Cutoff Voltage	$V_{GS}(off)$	V_{DS}=10V, I_D=1mA	3.5		5.5	V
Forward Transfer Admittance	|yfs|	V_{DS}=10V, I_D=0.5A	370	740		ms
Static Drain-to-Source On-State Resistance	$R_{DS}(on)$	I_D=0.5A, V_{GS}=15V		7.5	10	Ω
Input Capacitance	Ciss	V_{DS}=20V, f=1MHz		300		pF
Output Capacitance	Coss	V_{DS}=20V, f=1MHz		85		pF
Reverse Transfer Capacitance	Crss	V_{DS}=20V, f=1MHz		40		pF
Total Gate Charge	Qg	V_{DS}=200V, I_D=1A, V_{GS}=10V		8		nC
Turn-ON Delay Time	$t_d(on)$	See specified Test Circuit		12		ns
Rise Time	t_r	See specified Test Circuit		8		ns
Turn-OFF Delay Time	$t_d(off)$	See specified Test Circuit		27		ns
Fall Time	t_f	See specified Test Circuit		16		ns
Diode Forward Voltage	V_{SD}	I_S=1A, V_{GS}=0		0.82	1.2	V

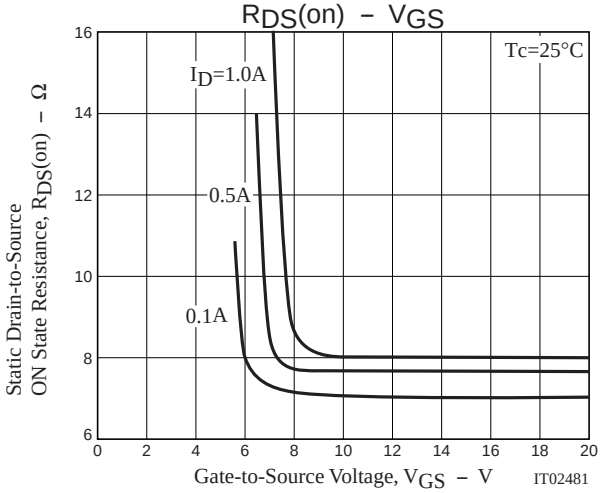
Marking : K2631

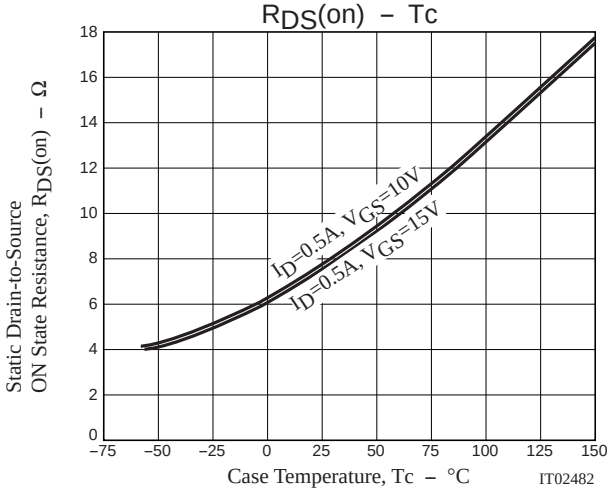
Switching Time Test Circuit

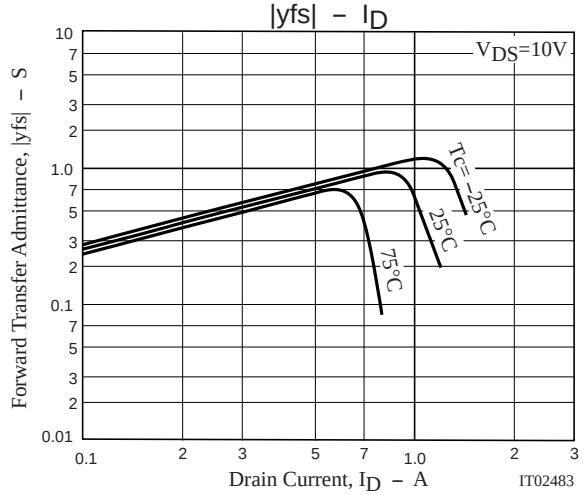


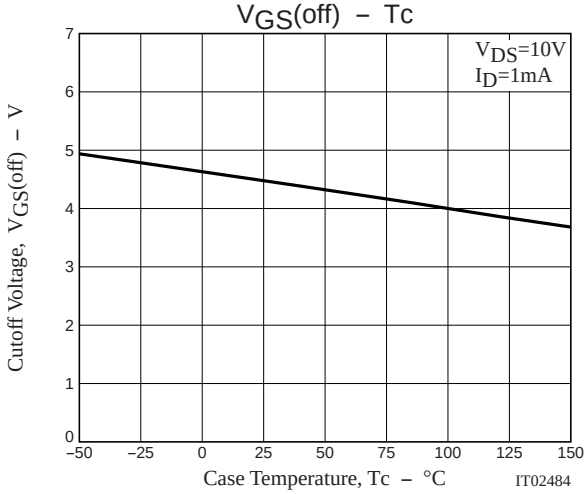

ID – VDS
Drain Current, ID – A
Drain-to-Source Voltage, VDS – V
15V
10V
8V
7V
VGS=6V
IT02479

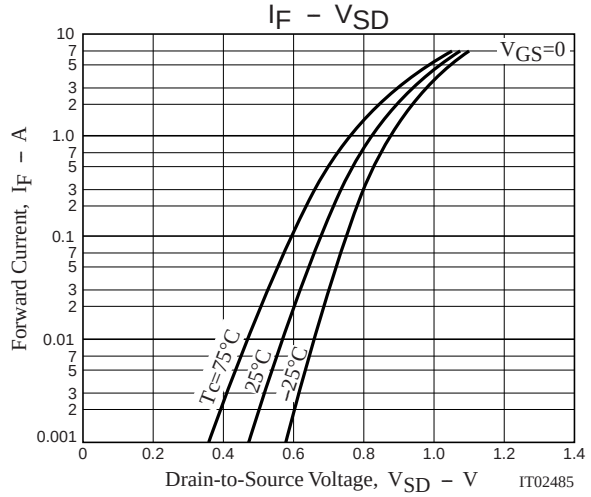

ID – VGS
Drain Current, ID – A
Gate-to-Source Voltage, VGS – V
VDS=10V
Tc= –25°C
25°C
75°C
IT02480

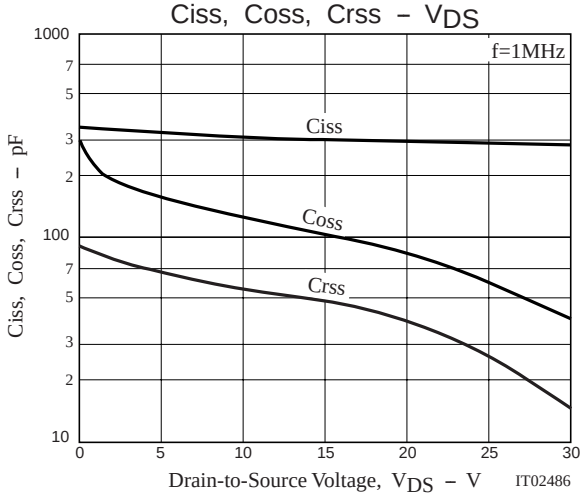

RDS(on) – VGS
Static Drain-to-Source ON State Resistance, RDS(on) – Ω
Gate-to-Source Voltage, VGS – V
Tc=25°C
ID=1.0A
0.5A
0.1A
IT02481

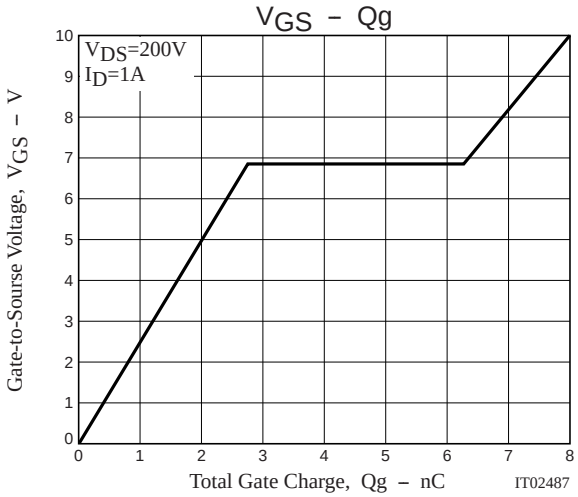

RDS(on) – Tc
Static Drain-to-Source ON State Resistance, RDS(on) – Ω
Case Temperature, Tc – °C
ID=0.5A, VGS=10V
ID=0.5A, VGS=15V
IT02482

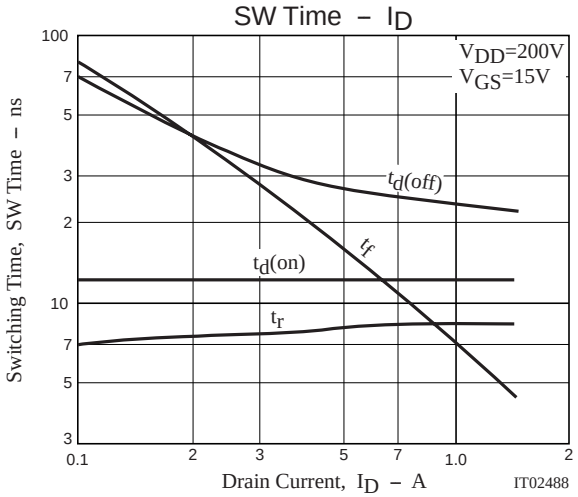

|yfs| – ID
Forward Transfer Admittance, |yfs| – S
Drain Current, ID – A
VDS=10V
Tc= –25°C
25°C
75°C
IT02483

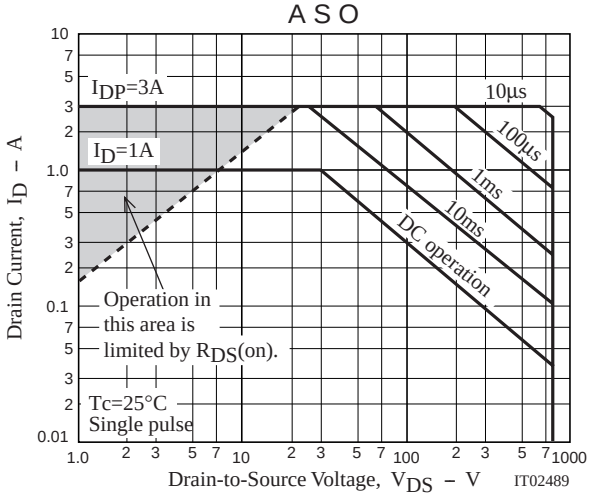

VGS(off) – Tc
Cutoff Voltage, VGS(off) – V
Case Temperature, Tc – °C
VDS=10V
ID=1mA
IT02484

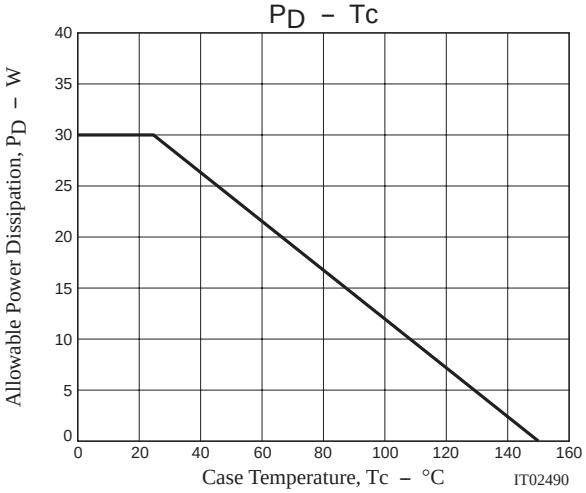

IF – VSD
Forward Current, IF – A
Drain-to-Source Voltage, VSD – V
VGS=0
Tc=75°C
25°C
–25°C
IT02485

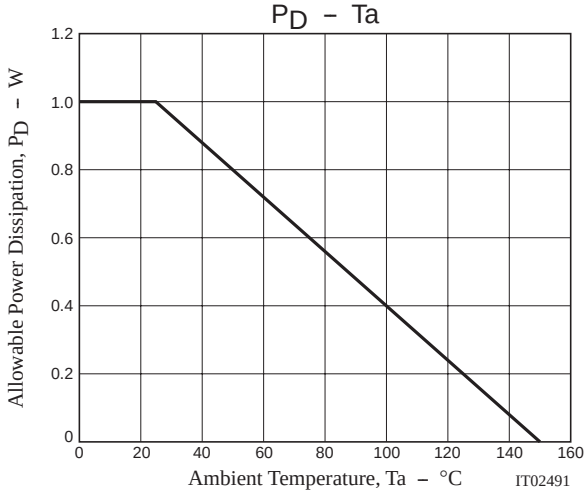

Ciss, Coss, Crss – VDS
Ciss, Coss, Crss – pF
Drain-to-Source Voltage, VDS – V
f=1MHz
Ciss
Coss
Crss
IT02486


VGS – Qg
VDS=200V
ID=1A
Gate-to-Sourse Voltage, VGS – V
Total Gate Charge, Qg – nC
IT02487


SW Time – ID
VDD=200V
VGS=15V
td(off)
tf
td(on)
tr
Switching Time, SW Time – ns
Drain Current, ID – A
IT02488


A S O
IDP=3A
ID=1A
10μs
100μs
1ms
10ms
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
IT02489


PD – Tc
Allowable Power Dissipation, PD – W
Case Temperature, Tc – °C
IT02490


PD – Ta
Allowable Power Dissipation, PD – W
Ambient Temperature, Ta – °C
IT02491

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