Ordering number : ENN6959

N-Channel Silicon MOSFET

2SK3491

Ultrahigh-Speed Switching Applications

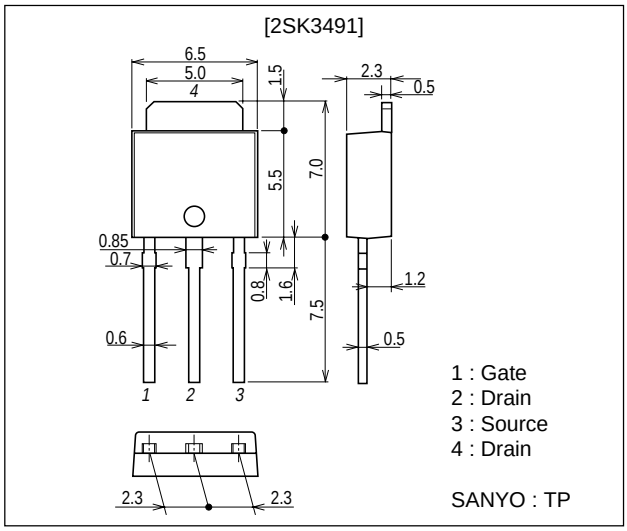
Features

- Low ON-resistance.
- Low Qg.

Package Dimensions

unit : mm

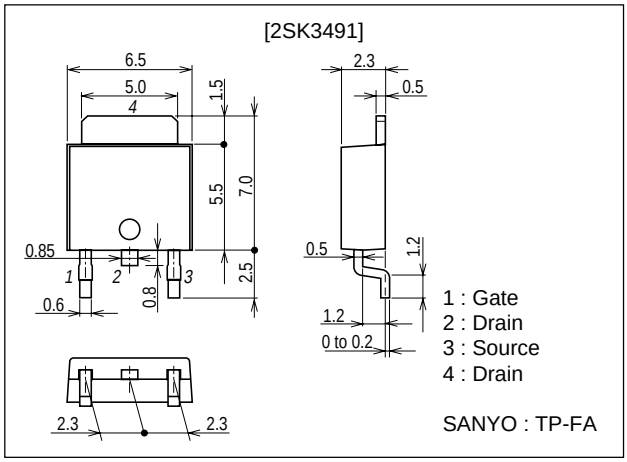
2083B



Package Dimensions

unit : mm

2092B



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■ SANYO assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all SANYO products described or contained herein.

Specifications

Absolute Maximum Ratings at Ta=25°C

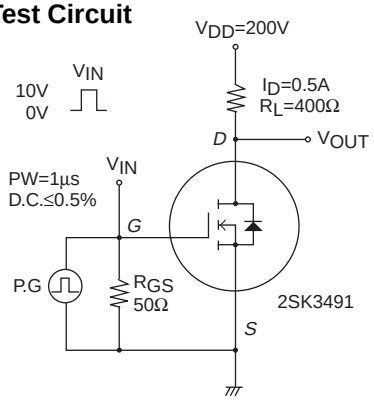
Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		600	V
Gate-to-Source Voltage	V_{GSS}		±30	V
Drain Current (DC)	I_D		1.0	A
Drain Current (Pulse)	I_{DP}	PW≤10μs, duty cycle≤1%	4.0	A
Allowable Power Dissipation	P_D		1.0	W
		Tc=25°C	20	W
Channel Temperature	Tch		150	°C
Storage Temperature	Tstg		-55 to +150	°C

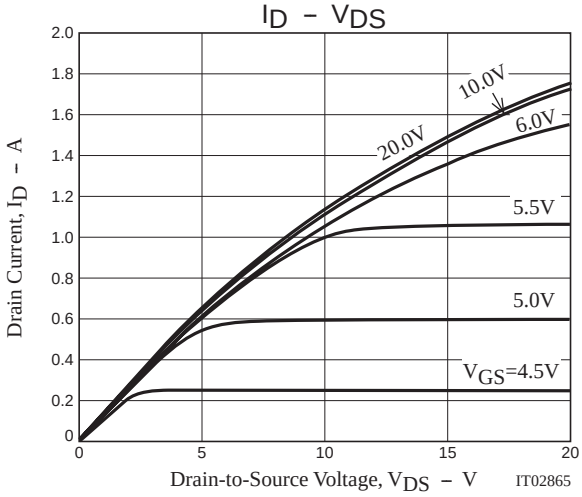
Electrical Characteristics at Ta=25°C

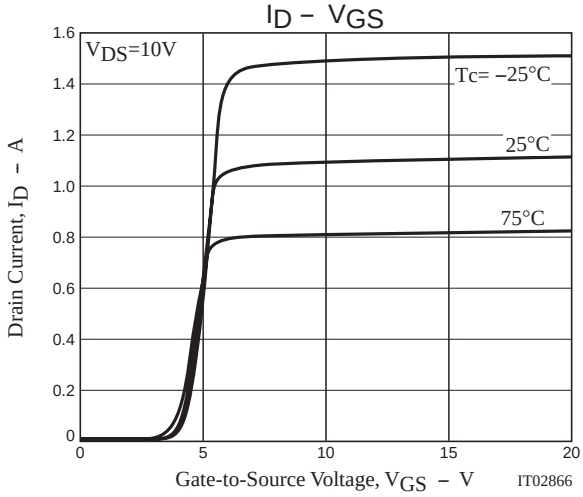
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	I_D=1mA, V_{GS}=0	600			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=600V, V_{GS}=0			100	μA
Gate-to-Sourse Leakage Current	I_{GSS}	V_{GS}=±30V, V_{DS}=0			±100	nA
Cutoff Voltage	$V_{GS}(off)$	V_{DS}=10V, I_D=1mA	2.5		3.5	V
Forward Transfer Admittance	$\|yfs\|$	V_{DS}=10V, I_D=0.5A	430	850		mS
Static Drain-to-Source On-State Resistance	$R_{DS}(on)$	V_{DS}=10V, I_D=0.5A		8.5	11	Ω
Input Capacitance	Ciss	V_{DS}=20V, f=1MHz		135		pF
Output Capacitance	Coss	V_{DS}=20V, f=1MHz		40		pF
Reverse Transfer Capacitance	Crss	V_{DS}=20V, f=1MHz		20		pF
Total Gate Charge	Qg	V_{DS}=200V, V_{GS}=10V, I_D=1.0A		6		nC
Turn-ON Delay Time	$t_d(on)$	See specified Test Circuit		8		ns
Rise Time	t_r	See specified Test Circuit		7		ns
Turn-OFF Delay Time	$t_d(off)$	See specified Test Circuit		17		ns
Fall Time	t_f	See specified Test Circuit		30		ns
Diode Forward Voltage	V_{SD}	I_S=1.0A, V_{GS}=0		0.83	1.2	V

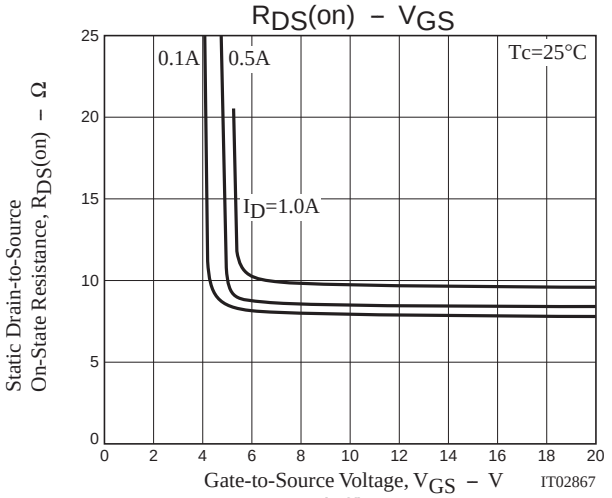
Marking : K3491

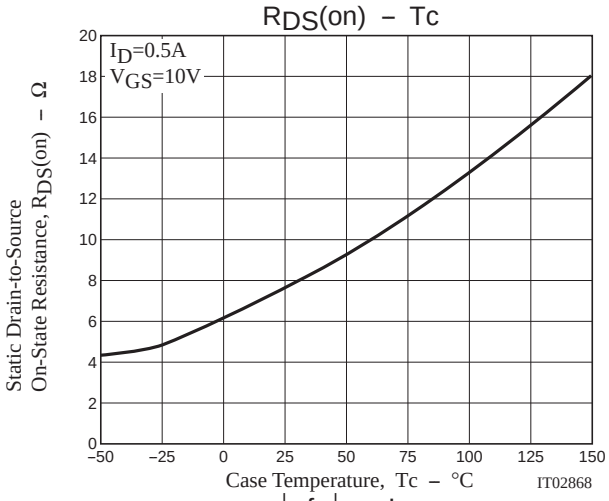
Switching Time Test Circuit

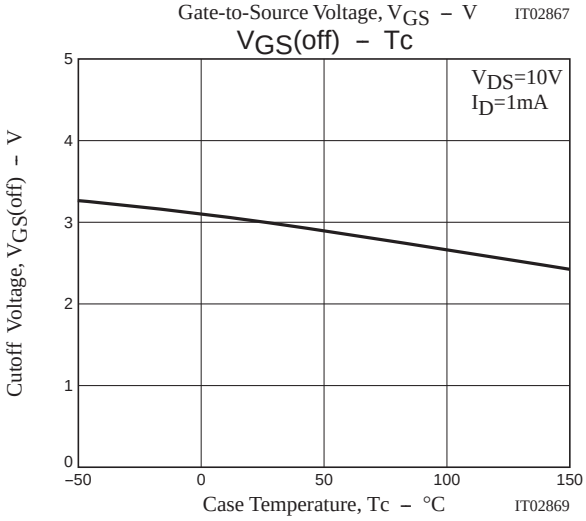


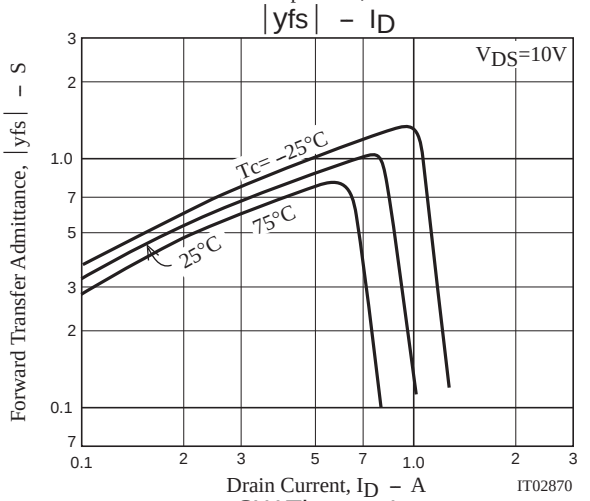


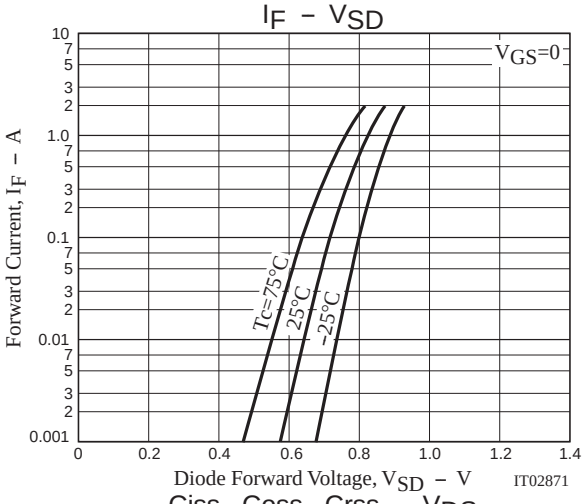


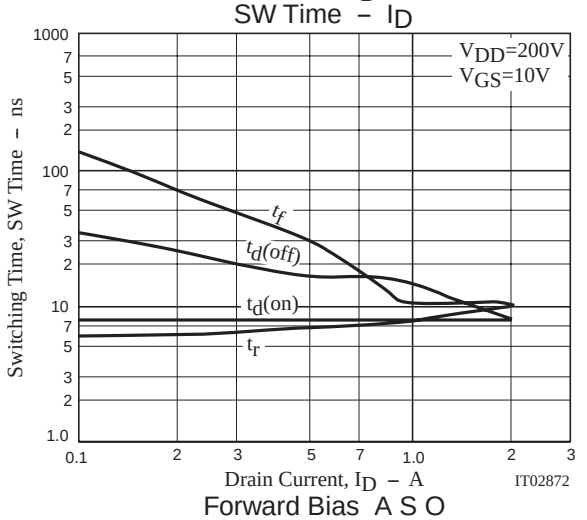

RDS(on) – VGS
Tc=25°C
0.1A
0.5A
ID=1.0A
Static Drain-to-Source On-State Resistance, RDS(on) – Ω
Gate-to-Source Voltage, VGS – V
IT02867

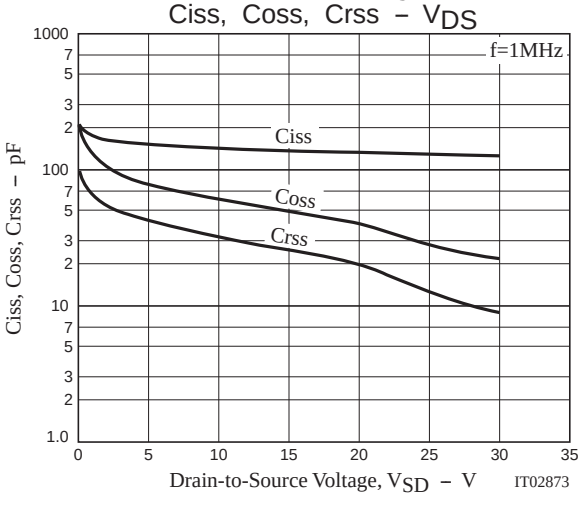

RDS(on) – Tc
ID=0.5A
VGS=10V
Static Drain-to-Source On-State Resistance, RDS(on) – Ω
Case Temperature, Tc – °C
IT02868

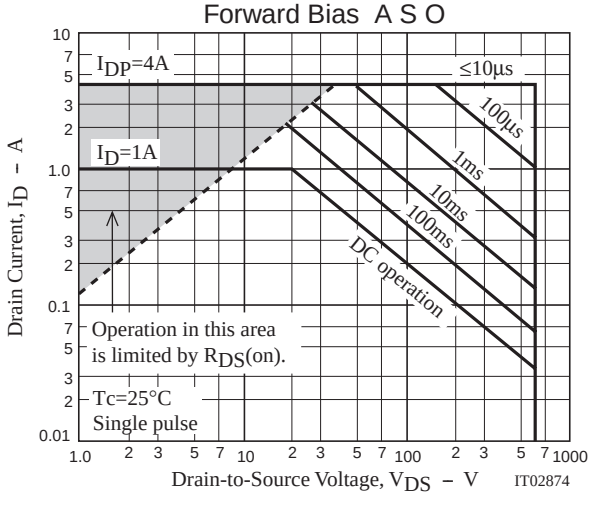

VGS(off) – Tc
VDS=10V
ID=1mA
Cutoff Voltage, VGS(off) – V
Case Temperature, Tc – °C
IT02869

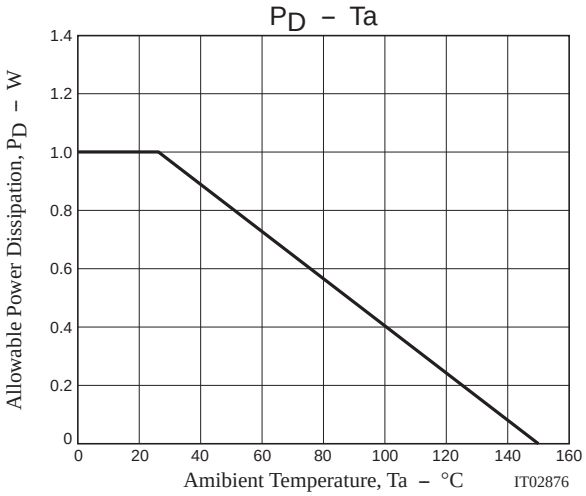

| yfs | – ID
VDS=10V
Tc=–25°C
75°C
25°C
Forward Transfer Admittance, | yfs | – S
Drain Current, ID – A
IT02870

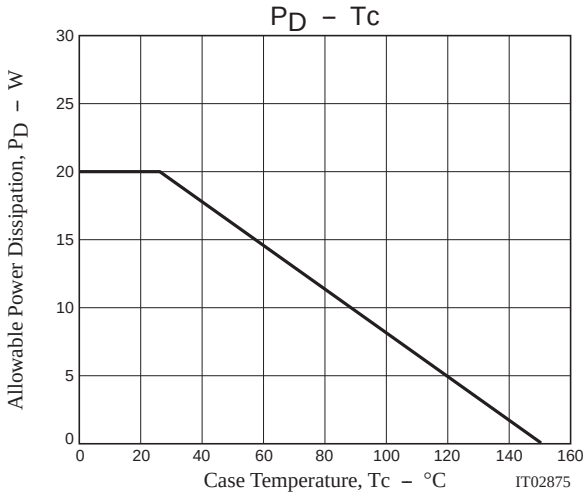

IF – VSD
VGS=0
Tc=75°C
25°C
–25°C
Forward Current, IF – A
Diode Forward Voltage, VSD – V
IT02871


SW Time – ID
VDD=200V
VGS=10V
tf
td(off)
td(on)
tr
Switching Time, SW Time – ns
Drain Current, ID – A
IT02872


Ciss, Coss, Crss – VDS
f=1MHz
Ciss
Coss
Crss
Ciss, Coss, Crss – pF
Drain-to-Source Voltage, VSD – V
IT02873


Forward Bias A S O
IDP=4A
ID=1A
≤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
IT02874





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