Ordering number : ENN7175

N-Channel Silicon MOSFET

2SK3411

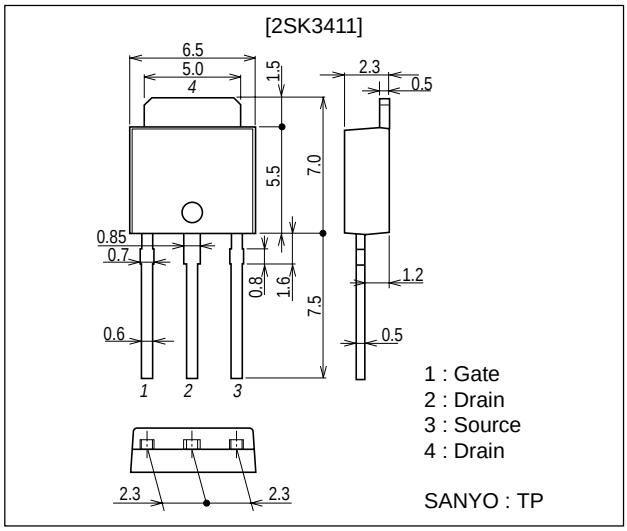
DC / DC Converter Applications

Features

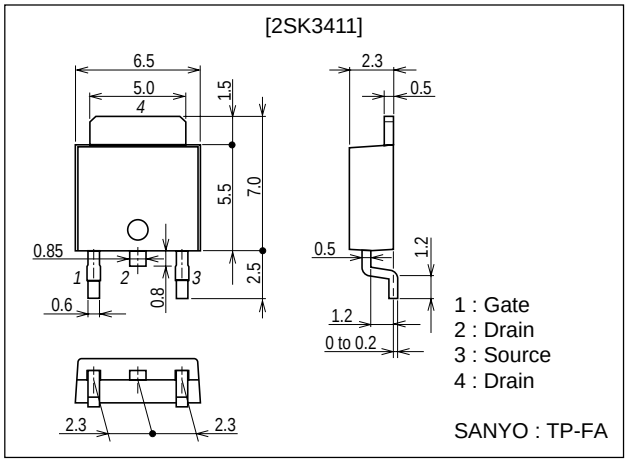
- Low ON-resistance.
- Ultrahigh-speed switching.
- 4V drive.

Package Dimensions

unit : mm
2083B



unit : mm
2092B



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Specifications

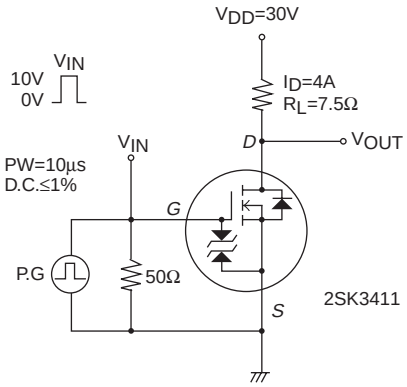
Absolute Maximum Ratings at Ta=25°C

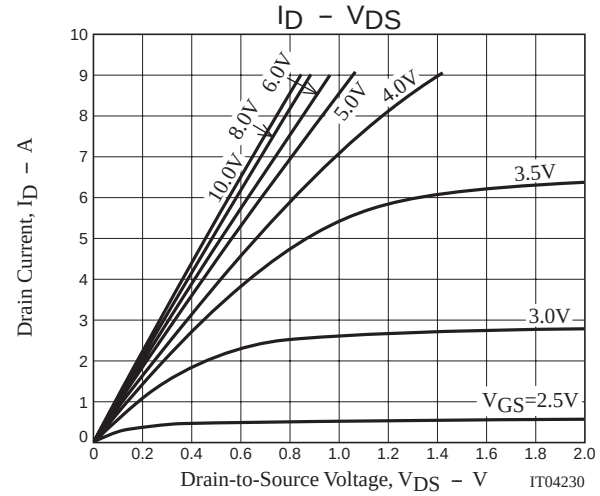
Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		60	V
Gate-to-Source Voltage	V_{GSS}		±20	V
Drain Current (DC)	I_D		9	A
Drain Current (Pulse)	I_{DP}	PW≤10μs, duty cycle≤1%	36	A
Allowable Power Dissipation	P_D		1	W
		Tc=25°C	15	W
Channel Temperature	Tch		150	°C
Storage Temperature	Tstg		-55 to +150	°C

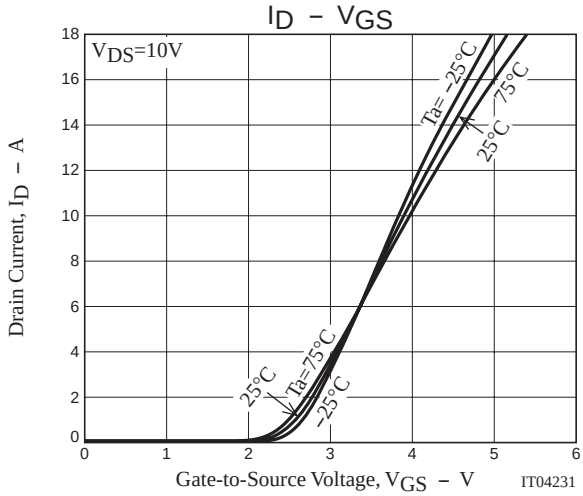
Electrical Characteristics at Ta=25°C

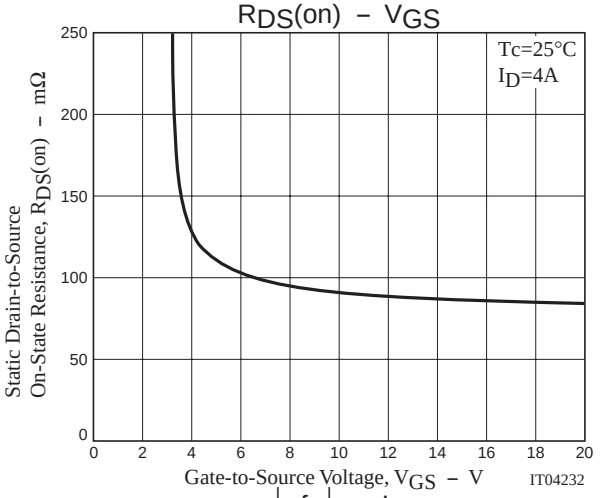
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	I_D=1mA, V_{GS}=0	60			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=60V, V_{GS}=0			10	μA
Gate-to-Source Leakage Current	I_{GSS}	V_{GS}=±16V, V_{DS}=0			±10	μA
Cutoff Voltage	$V_{GS}(off)$	V_{DS}=10V, I_D=1mA	1.0		2.4	V
Forward Transfer Admittance	$\|yfs\|$	V_{DS}=10V, I_D=4A	4.5	6.5		S
Static Drain-to-Source On-State Resistance	$R_{DS}(on)1$	I_D=4A, V_{GS}=10V		94	122	mΩ
	$R_{DS}(on)2$	I_D=4A, V_{GS}=4V		125	175	mΩ
Input Capacitance	Ciss	V_{DS}=20V, f=1MHz		280		pF
Output Capacitance	Coss	V_{DS}=20V, f=1MHz		90		pF
Reverse Transfer Capacitance	Crss	V_{DS}=20V, f=1MHz		30		pF
Turn-ON Delay Time	$t_d(on)$	See specified Test Circuit.		7		ns
Rise Time	t_r	See specified Test Circuit.		10		ns
Turn-OFF Delay Time	$t_d(off)$	See specified Test Circuit.		26		ns
Fall Time	t_f	See specified Test Circuit.		8		ns
Total Gate Charge	Qg	V_{DS}=10V, V_{GS}=10V, I_D=9A		10		nC
Gate-to-Source Charge	Qgs	V_{DS}=10V, V_{GS}=10V, I_D=9A		1.7		nC
Gate-to-Drain “Miller” Charge	Qgd	V_{DS}=10V, V_{GS}=10V, I_D=9A		2.1		nC
Diode Forward Voltage	V_{SD}	I_S=9A, V_{GS}=0		0.95	1.2	V

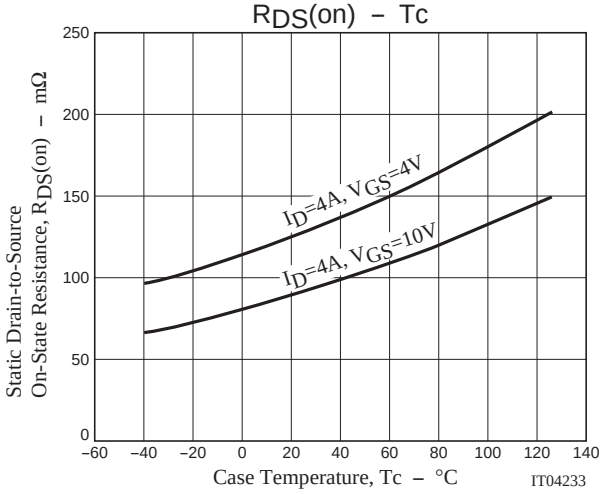
Switching Time Test Circuit

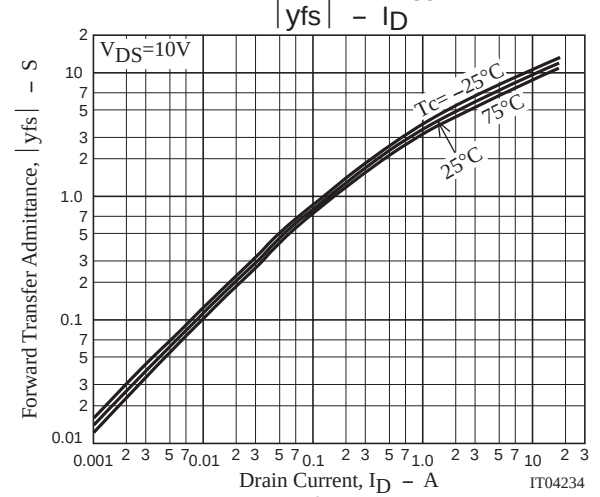


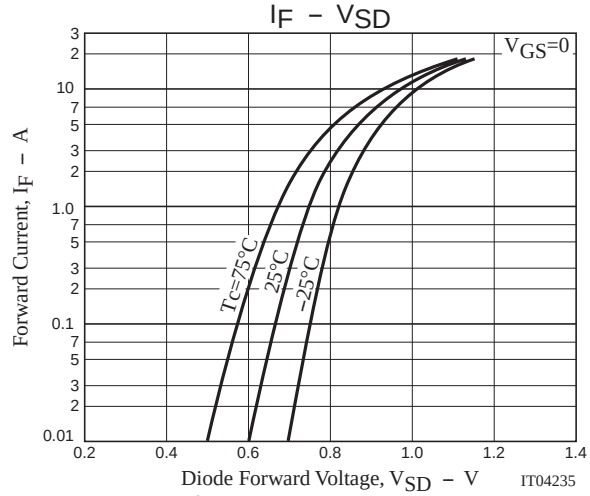

ID – VDS
Drain Current, ID – A
Drain-to-Source Voltage, VDS – V
IT04230
10.0V
8.0V
6.0V
5.0V
4.0V
3.5V
3.0V
VGS=2.5V

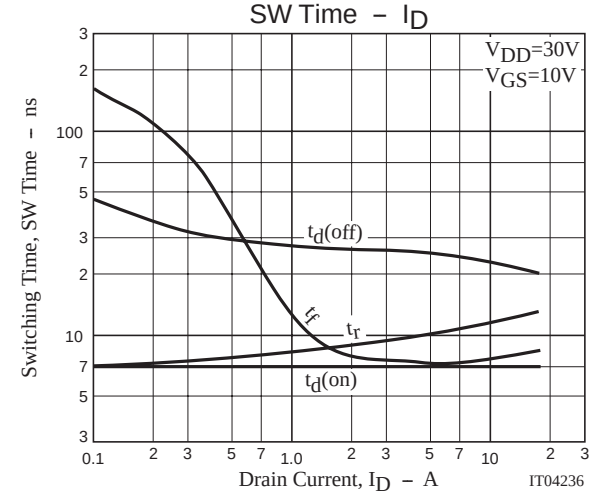

ID – VGS
VDS=10V
Drain Current, ID – A
Gate-to-Source Voltage, VGS – V
IT04231
Ta=–25°C
25°C
75°C
25°C
Ta=75°C
–25°C

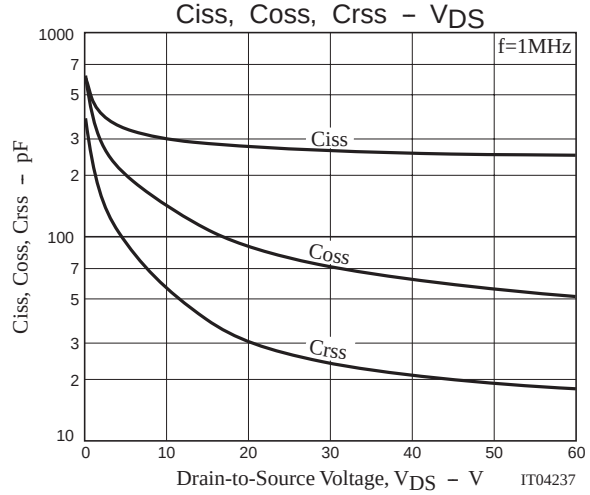

RDS(on) – VGS
Tc=25°C
ID=4A
Static Drain-to-Source On-State Resistance, RDS(on) – mΩ
Gate-to-Source Voltage, VGS – V
IT04232

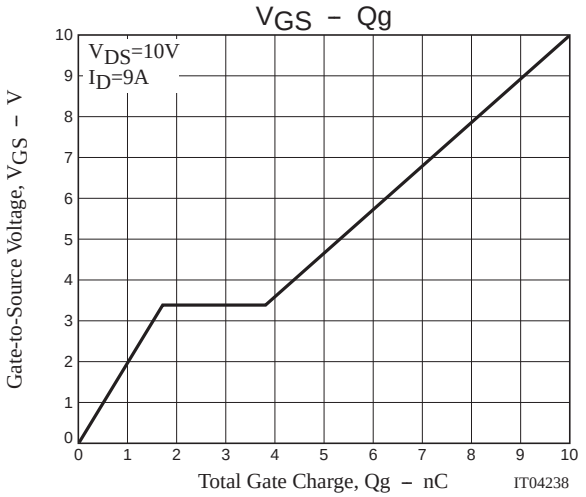

RDS(on) – Tc
ID=4A, VGS=4V
ID=4A, VGS=10V
Static Drain-to-Source On-State Resistance, RDS(on) – mΩ
Case Temperature, Tc – °C
IT04233

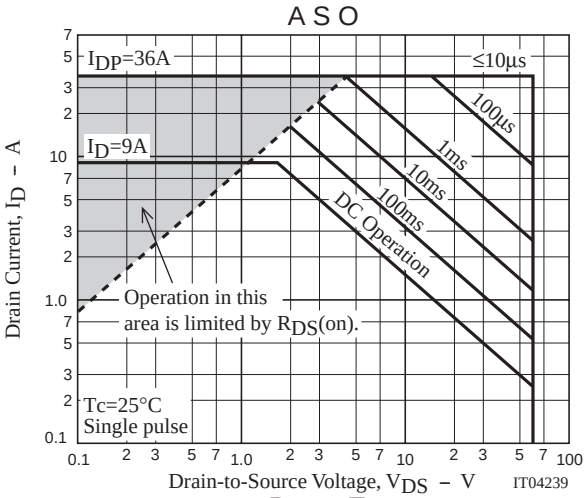

|yfs| – ID
VDS=10V
Tc=–25°C
75°C
25°C
Forward Transfer Admittance, |yfs| – S
Drain Current, ID – A
IT04234

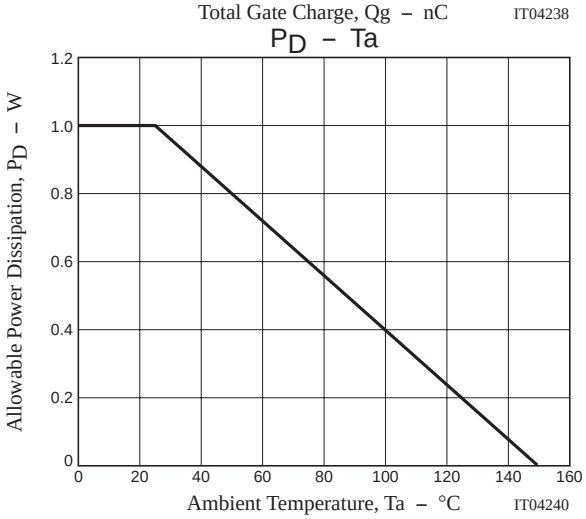

IF – VSD
VGS=0
Tc=75°C
25°C
–25°C
Forward Current, IF – A
Diode Forward Voltage, VSD – V
IT04235

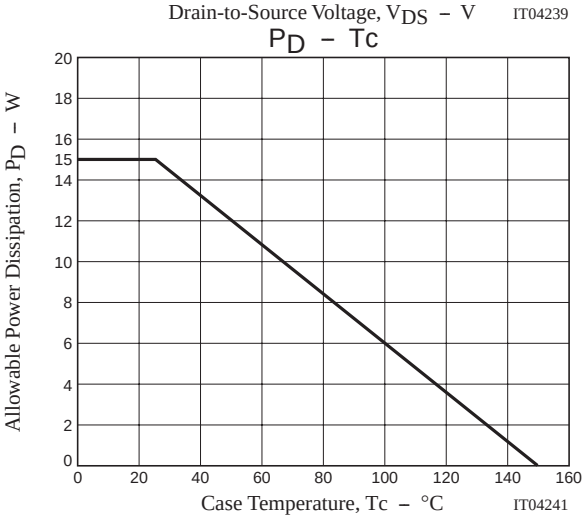

SW Time – ID
VDD=30V
VGS=10V
td(off)
tf
tr
td(on)
Switching Time, SW Time – ns
Drain Current, ID – A
IT04236


Ciss, Coss, Crss – VDS
f=1MHz
Ciss
Coss
Crss
Ciss, Coss, Crss – pF
Drain-to-Source Voltage, VDS – V
IT04237









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