Ordering number : ENN7421

P-Channel Silicon MOSFET

2SJ633

DC / DC Converter Applications

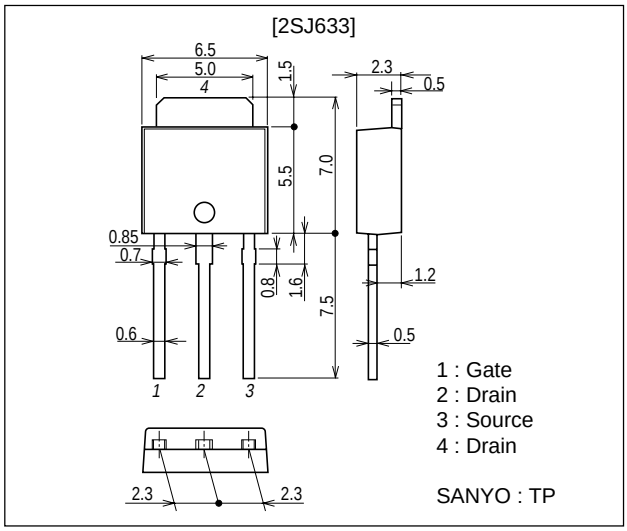
Features

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

Package Dimensions

unit : mm

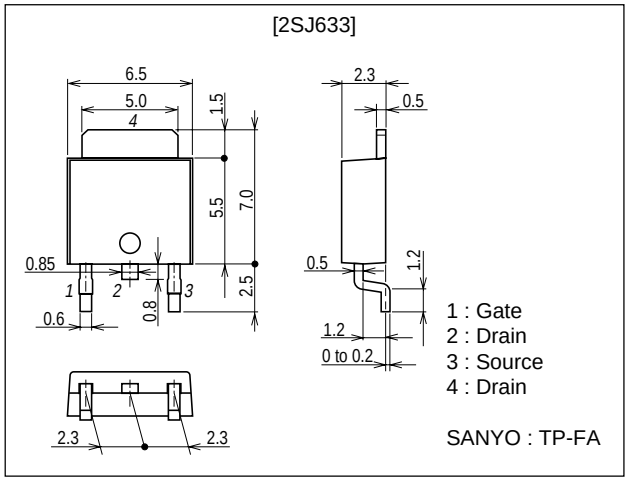
2083B



Package Dimensions

unit : mm

2092B



Specifications

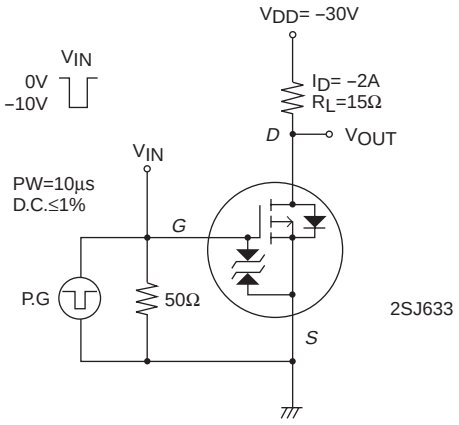
Absolute Maximum Ratings at Ta=25°C

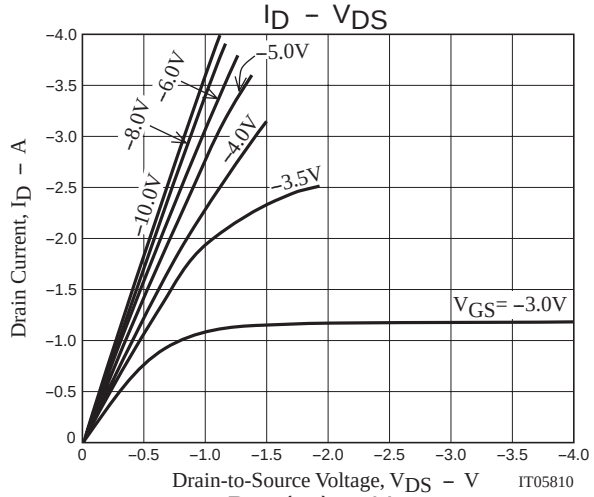
Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		−60	V
Gate-to-Source Voltage	V_{GSS}		±20	V
Drain Current (DC)	I_D		−4	A
Drain Current (Pulse)	I_{DP}	PW≤10μs, duty cycle≤1%	−16	A
Allowable Power Dissipation	P_D		1	W
		Tc=25°C	15	W
Channel Temperature	Tch		150	°C
Storage Temperature	Tstg		−55 to +150	°C

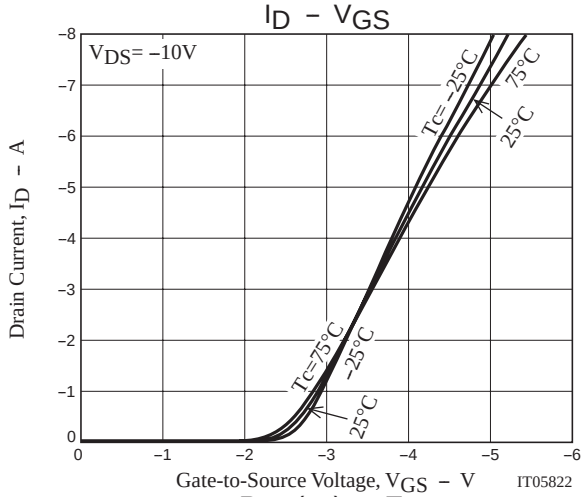
Electrical Characteristics at Ta=25°C

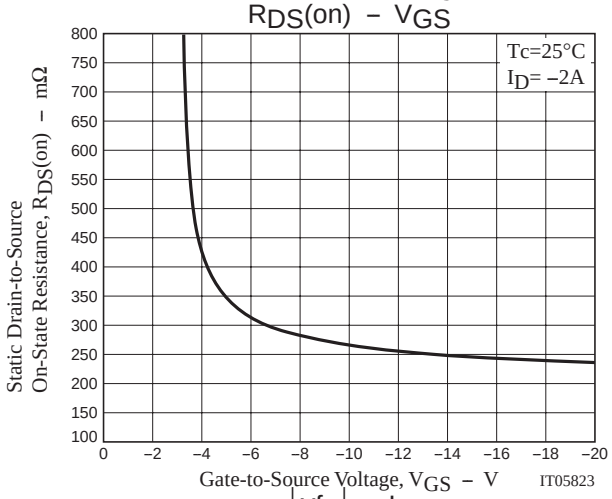
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	I_D=−1mA, V_{GS}=0	−60			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=−60V, V_{GS}=0			−1	μA
Gate-to-Source Leakage Current	I_{GSS}	V_{GS}=±16V, V_{DS}=0			±10	μA
Cutoff Voltage	V_{GS}(off)	V_{DS}=−10V, I_D=−1mA	−1.2		−2.6	V
Forward Transfer Admittance	|yfs|	V_{DS}=−10V, I_D=−2A	1.5	3		S
Static Drain-to-Source On-State Resistance	R_{DS}(on)1	I_D=−2A, V_{GS}=−10V		280	365	mΩ
	R_{DS}(on)2	I_D=−2A, V_{GS}=−4V		405	565	mΩ
Input Capacitance	Ciss	V_{DS}=−20V, f=1MHz		365		pF
Output Capacitance	Coss	V_{DS}=−20V, f=1MHz		39		pF
Reverse Transfer Capacitance	Crss	V_{DS}=−20V, f=1MHz		30		pF
Turn-ON Delay Time	t_d(on)	See specified Test Circuit.		9		ns
Rise Time	t_r	See specified Test Circuit.		45		ns
Turn-OFF Delay Time	t_d(off)	See specified Test Circuit.		33		ns
Fall Time	t_f	See specified Test Circuit.		41		ns
Total Gate Charge	Qg	V_{DS}=−30V, V_{GS}=−10V, I_D=−4A		9		nC
Gate-to-Source Charge	Qgs	V_{DS}=−30V, V_{GS}=−10V, I_D=−4A		1.7		nC
Gate-to-Drain “Miller” Charge	Qgd	V_{DS}=−30V, V_{GS}=−10V, I_D=−4A		1.7		nC
Diode Forward Voltage	V_{SD}	I_S=−4A, V_{GS}=0		−0.9	−1.2	V

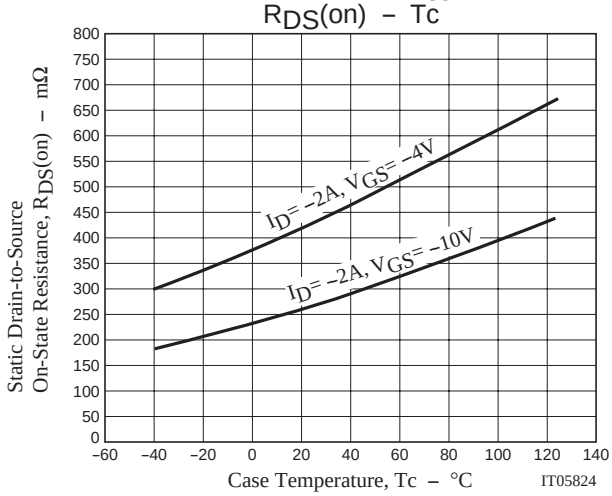
Switching Time Test Circuit

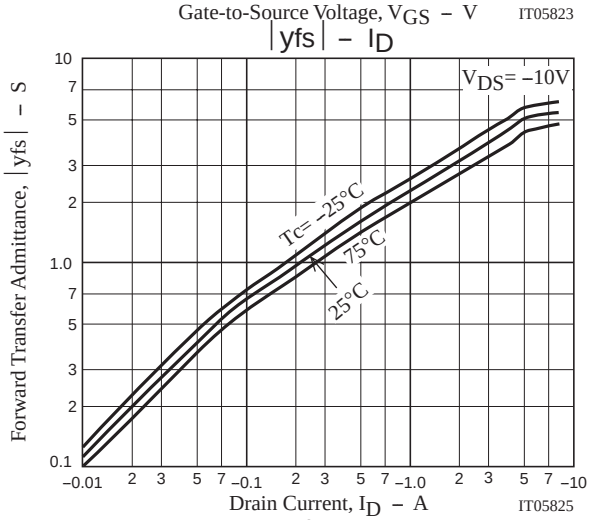


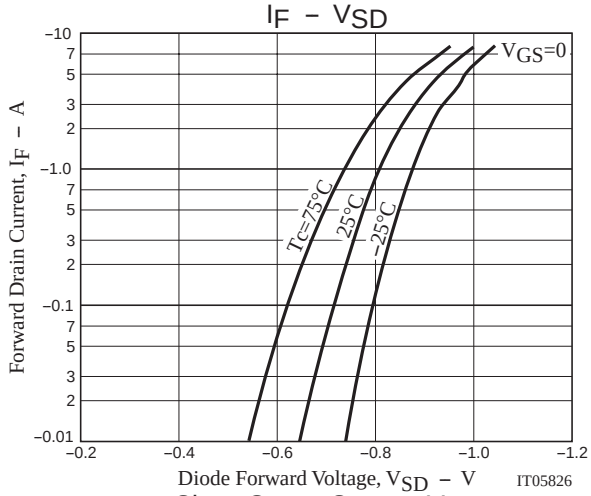

ID – VDS
Drain Current, ID – A
Drain-to-Source Voltage, VDS – V
IT05810
–5.0V
–6.0V
–8.0V
–4.0V
–10.0V
–3.5V
VGS= –3.0V

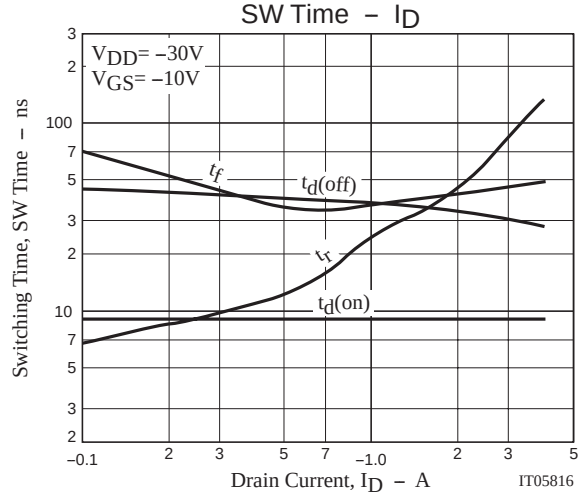

ID – VGS
Drain Current, ID – A
Gate-to-Source Voltage, VGS – V
IT05822
VDS= –10V
Tc= –25°C
75°C
25°C
Tc=75°C
–25°C
25°C

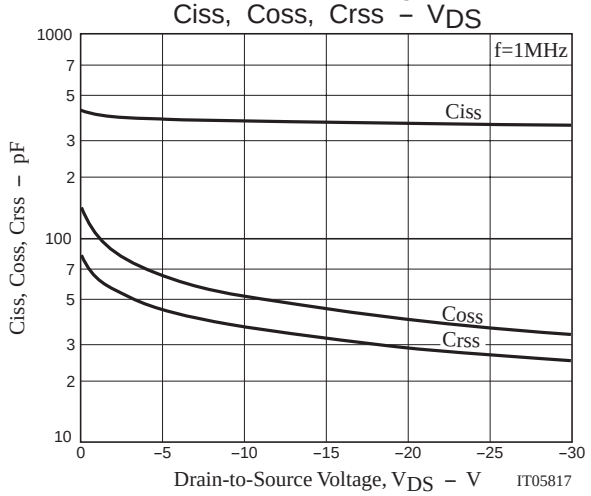

RDS(on) – VGS
Static Drain-to-Source On-State Resistance, RDS(on) – mΩ
Gate-to-Source Voltage, VGS – V
IT05823
Tc=25°C
ID= –2A


RDS(on) – Tc
Static Drain-to-Source On-State Resistance, RDS(on) – mΩ
Case Temperature, Tc – °C
IT05824
ID= –2A, VGS= –4V
ID= –2A, VGS= –10V


| yfs | – ID
Forward Transfer Admittance, | yfs | – S
Drain Current, ID – A
IT05825
VDS= –10V
Tc= –25°C
75°C
25°C


IF – VSD
Forward Drain Current, IF – A
Diode Forward Voltage, VSD – V
IT05826
VGS=0
Tc=75°C
25°C
–25°C


SW Time – ID
Switching Time, SW Time – ns
Drain Current, ID – A
IT05816
VDD= –30V
VGS= –10V
tf
td(off)
tr
td(on)


Ciss, Coss, Crss – VDS
Ciss, Coss, Crss – pF
Drain-to-Source Voltage, VDS – V
IT05817
f=1MHz
Ciss
Coss
Crss