Ordering number:ENN6436

N-Channel Silicon MOSFET

2SK3280

DC/DC Converter Applications

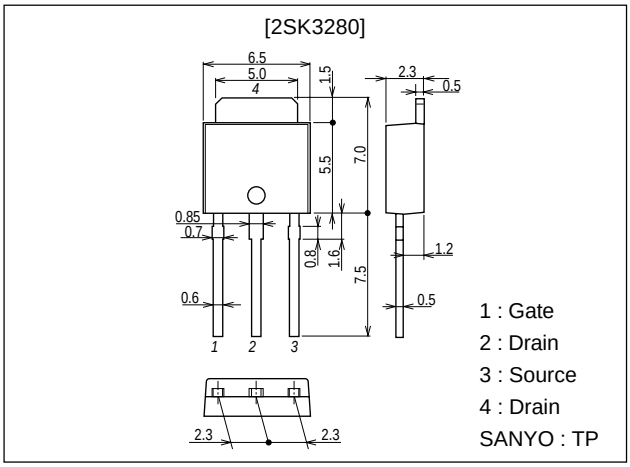
Features

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

Package Dimensions

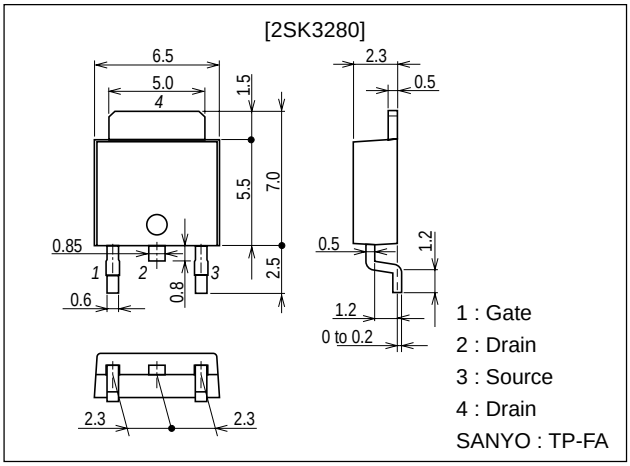
unit:mm

2083B



unit:mm

2092B



SANYO Electric Co.,Ltd. Semiconductor Company

TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

Specifications

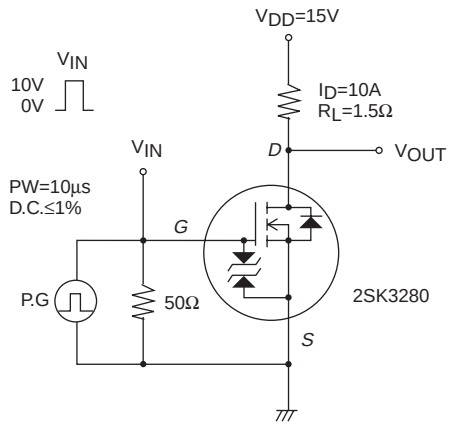
Absolute Maximum Ratings at Ta = 25˚C

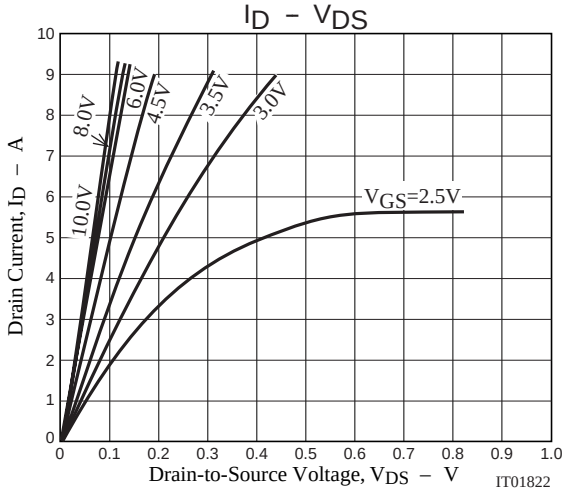
Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		30	V
Gate-to-Source Voltage	V_{GSS}		±20	V
Drain Current (DC)	I_D		20	A
Drain Current (Pulse)	I_{DP}	PW≤10μs, duty cycle≤1%	45	A
Allowable Power Dissipation	P_D		1	W
		Tc=25˚C	30	W
Channel Temperature	Tch		150	˚C
Storage Temperature	Tstg		–55 to +150	˚C

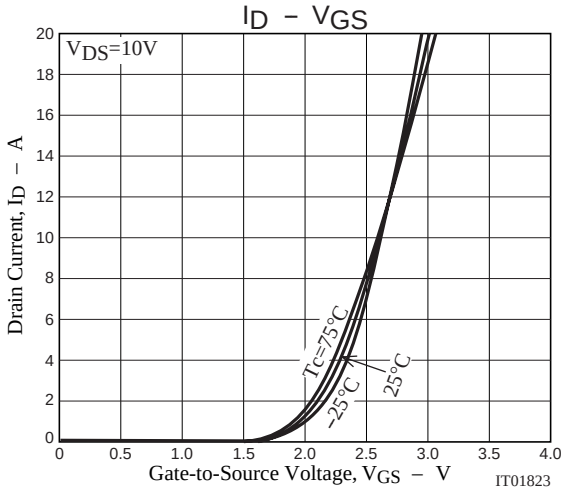
Electrical Characteristics at Ta = 25˚C

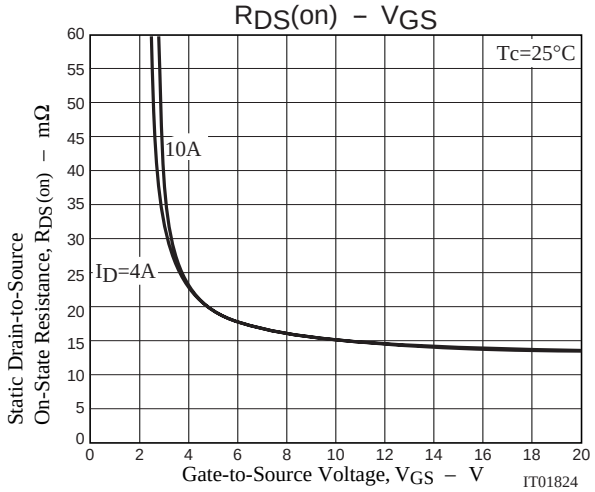
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	I_D=1mA, V_{GS}=0	30			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=30V, V_{GS}=0			1	μA
Gate-to-Source Leakage Current	I_{GSS}	V_{GS}=±16V, V_{DS}=0			±10	μA
Cutoff Voltage	$V_{GS}(off)$	V_{DS}=10V, I_D=1mA	1.0		2.4	V
Forward Transfer Admittance	| yfs |	V_{DS}=10V, I_D=10A	12	18		S
Static Drain-to-Source On-State Resistance	$R_{DS}(on)1$	I_D=10A, V_{GS}=10V		15	20	mΩ
	$R_{DS}(on)2$	I_D=10A, V_{GS}=4.5V		22	31	mΩ
Input Capacitance	Ciss	V_{DS}=10V, f=1MHz		1000		pF
Output Capacitance	Coss	V_{DS}=10V, f=1MHz		410		pF
Reverse Transfer Capacitance	Crss	V_{DS}=10V, f=1MHz		160		pF
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit		11		ns
Rise Time	t_r	See specified Test Circuit		210		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit		80		ns
Fall Time	t_f	See specified Test Circuit		85		ns
Total Gate Charge	Qg	V_{DS}=10V, V_{GS}=10V, I_D=20A		17		nC
Gate-to-Source Charge	Qgs	V_{DS}=10V, V_{GS}=10V, I_D=20A		3.3		nC
Gate-to-Drain "Miller" Charge	Qgd	V_{DS}=10V, V_{GS}=10V, I_D=20A		1.7		nC
Diode Forward Voltage	V_{SD}	I_S=20A, V_{GS}=0		1.0	1.2	V

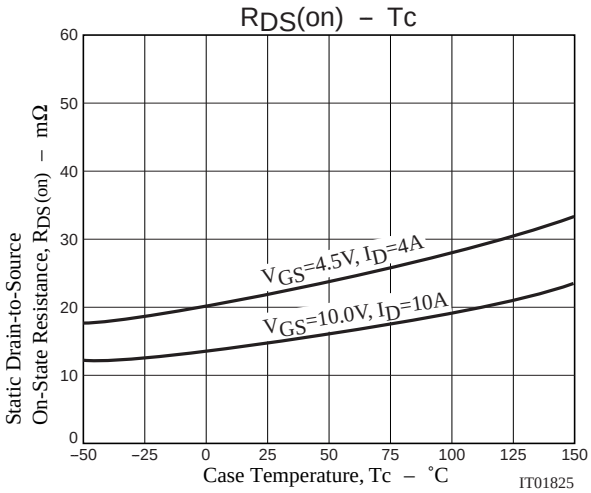
Switching Time Test Circuit

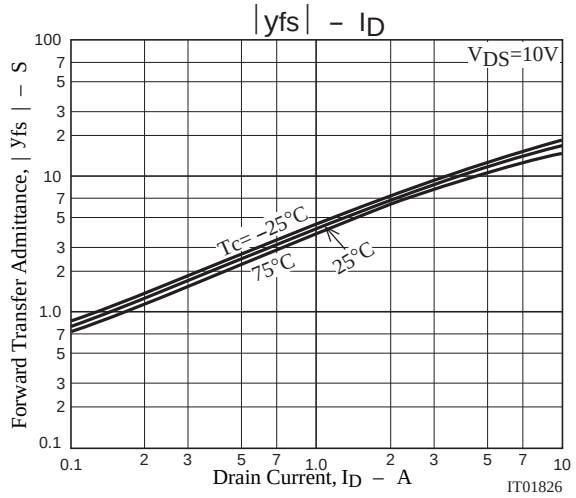


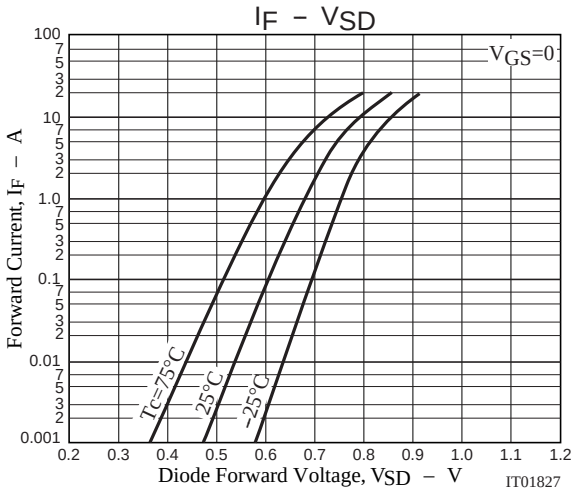

ID – VDS
Drain Current, ID – A
Drain-to-Source Voltage, VDS – V
8.0V
6.0V
4.5V
3.5V
3.0V
10.0V
VGS=2.5V
IT01822

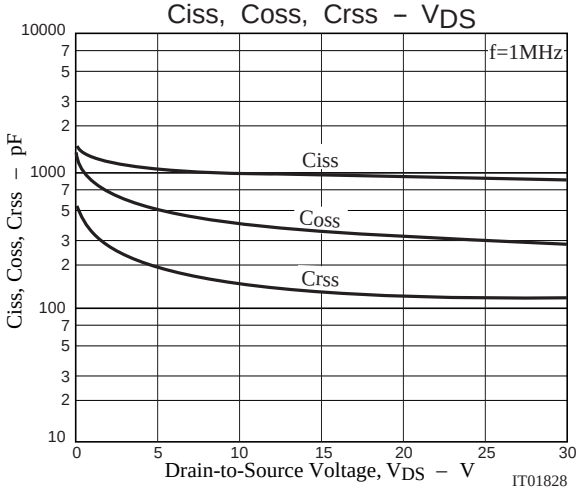

ID – VGS
VDS=10V
Drain Current, ID – A
Gate-to-Source Voltage, VGS – V
Tc=75°C
25°C
–25°C
IT01823

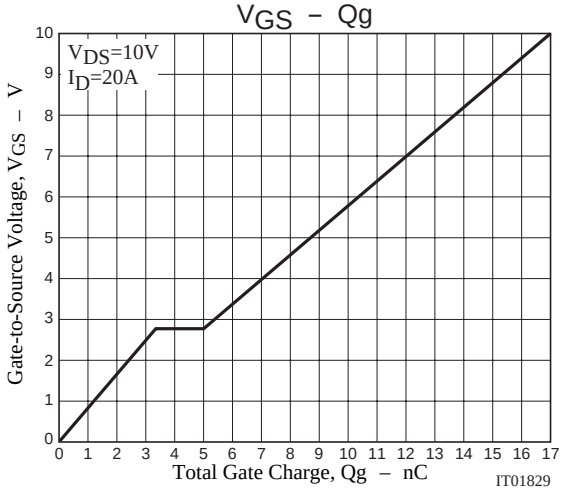

RDS(on) – VGS
Tc=25°C
10A
ID=4A
Static Drain-to-Source
On-State Resistance, RDS(on) – mΩ
Gate-to-Source Voltage, VGS – V
IT01824


RDS(on) – Tc
VGS=4.5V, ID=4A
VGS=10.0V, ID=10A
Static Drain-to-Source
On-State Resistance, RDS(on) – mΩ
Case Temperature, Tc – °C
IT01825


|yfs| – ID
VDS=10V
Tc=–25°C
75°C
25°C
Forward Transfer Admittance, |yfs| – S
Drain Current, ID – A
IT01826


IF – VSD
VGS=0
Tc=75°C
25°C
–25°C
Forward Current, IF – A
Diode Forward Voltage, VSD – V
IT01827


Ciss, Coss, Crss – VDS
f=1MHz
Ciss
Coss
Crss
Ciss, Coss, Crss – pF
Drain-to-Source Voltage, VDS – V
IT01828


VGS – Qg
VDS=10V
ID=20A
Gate-to-Source Voltage, VGS – V
Total Gate Charge, Qg – nC
IT01829