Ordering number:EN5064A

P-Channel Silicon MOSFET

2SJ420

Ultrahigh-Speed Switching Applications

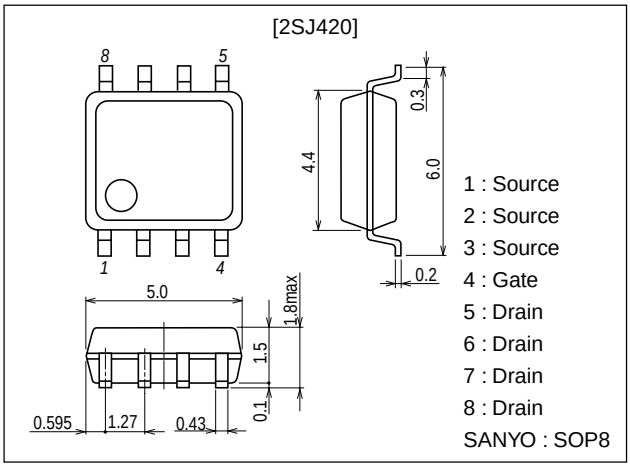
Features

- Low ON resistance.
- Ultrahigh-speed switching.
- 2.5V drive.

Package Dimensions

unit:mm

2116



Specifications

Absolute Maximum Ratings at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		–12	V
Gate-to-Source Voltage	V_{GSS}		±10	V
Drain Current (DC)	I_D		–5	A
Drain Current (Pulse)	I_{DP}	PW≤10μs, duty cycle≤1%	–32	A
Allowable Power Dissipation	P_D	Mounted on ceramic board (1000mm²×0.8mm)	2.0	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	–12			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=–10V, V_{GS}=0			–100	μA
Gate-to-Source Leakage Current	I_{GSS}	V_{GS}=±8V, V_{DS}=0			±10	μA
Cutoff Voltage	$V_{GS(off)}$	V_{DS}=–6V, I_D=–1mA	–0.4		–1.4	V
Forward Transfer Admittance	| yfs |	V_{DS}=–6V, I_D=–5A	8	12		S
Static Drain-to-Source ON-State Resistance	$R_{DS(on)}1$	I_D=–5A, V_{GS}=–4V		50	63	mΩ
	$R_{DS(on)}2$	I_D=–2A, V_{GS}=–2.5V		70	108	mΩ

Continued on next page.

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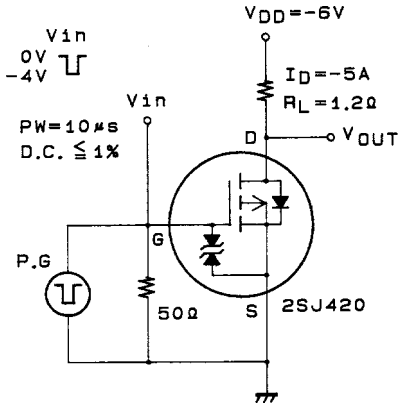
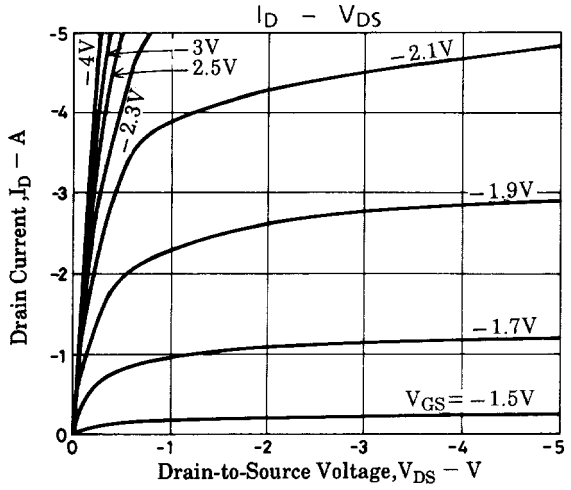
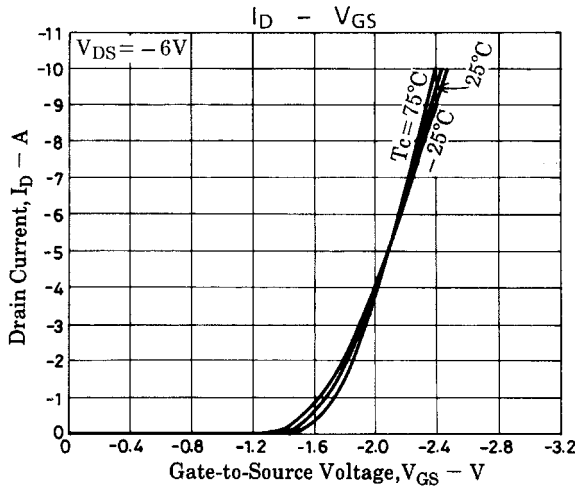
Continued from preceding page.

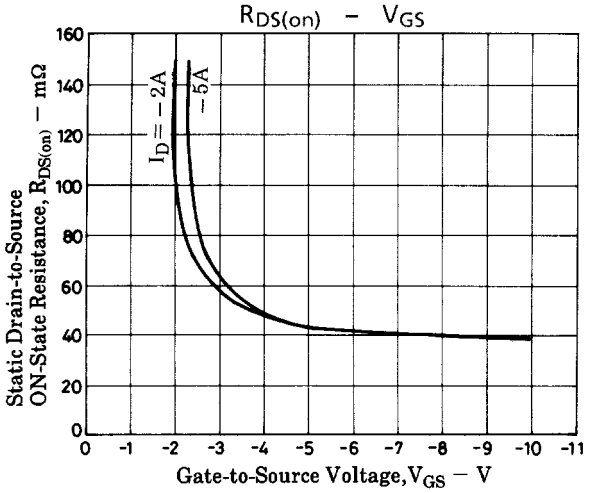
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss	V_{DS}=–6V, f=1MHz		1200		pF
Output Capacitance	Coss	V_{DS}=–6V, f=1MHz		1100		pF
Reverse Transfer Capacitance	Crss	V_{DS}=–6V, f=1MHz		400		pF
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit		25		ns
Rise Time	t_r	See specified Test Circuit		150		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit		150		ns
Fall Time	t_f	See specified Test Circuit		180		ns
Diode Forward Voltage	V_{SD}	I_S=–5A, V_{GS}=0		–1.0	–1.2	V

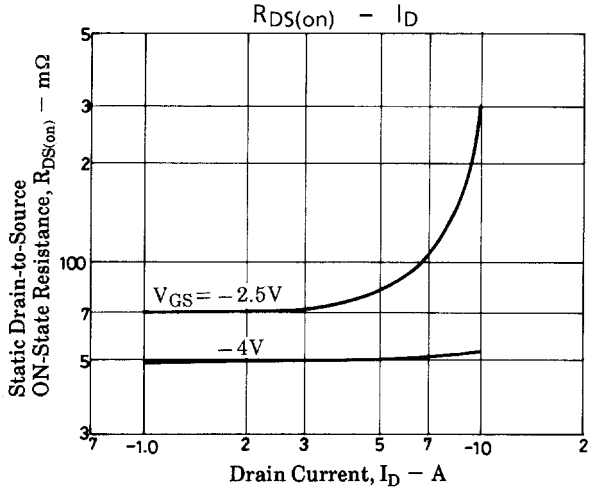
Switching Time Test Circuit

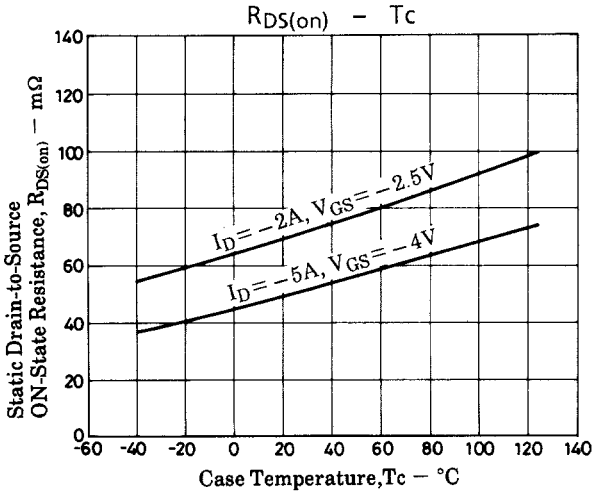


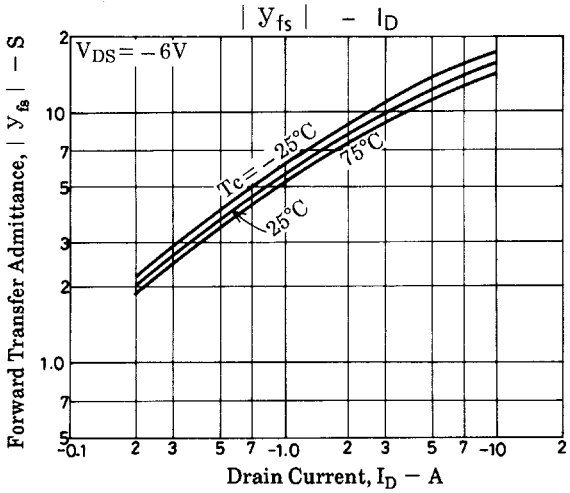


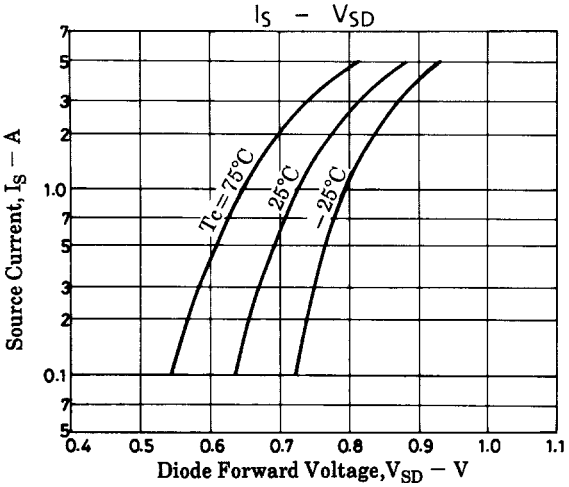


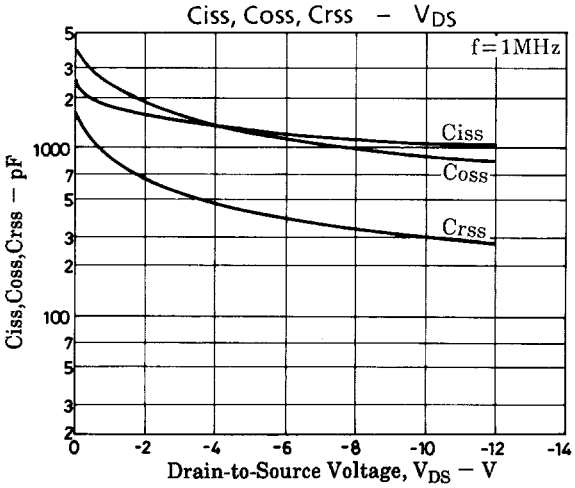


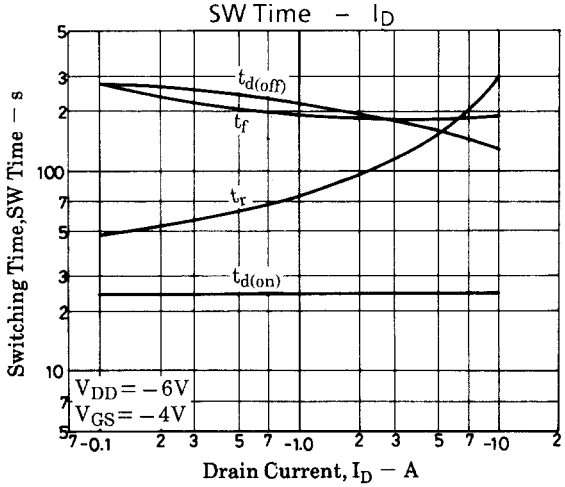


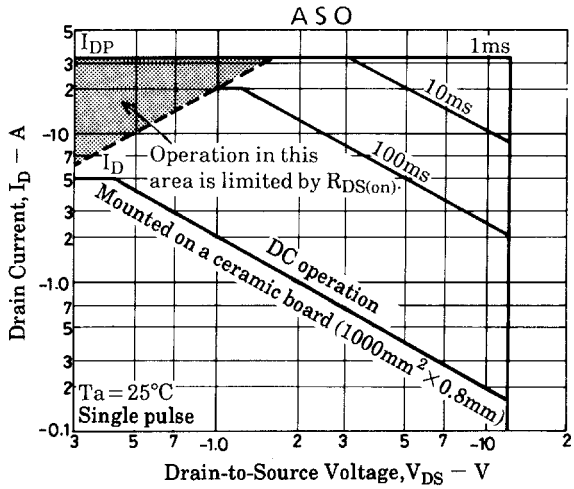

RDS(on) – Tc
Static Drain-to-Source ON-State Resistance, RDS(on) – mΩ
ID = –2A, VGS = –2.5V
ID = –5A, VGS = –4V
Case Temperature, Tc – °C

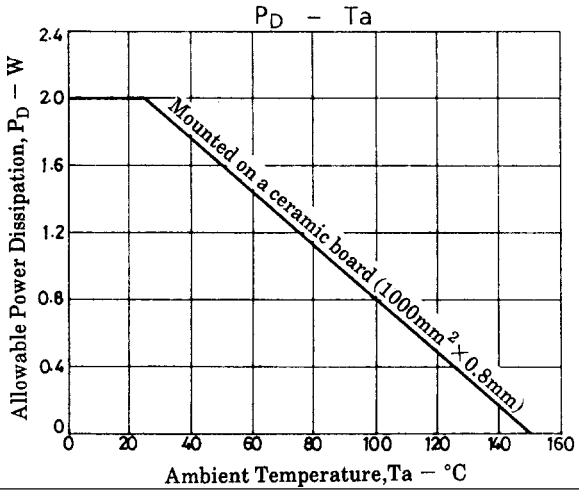

| yfs | – ID
Forward Transfer Admittance, | yfs | – S
VDS = –6V
Tc = –25°C
75°C
25°C
Drain Current, ID – A


IS – VSD
Source Current, IS – A
Tc = 75°C
25°C
–25°C
Diode Forward Voltage, VSD – V


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


SW Time – ID
Switching Time, SW Time – s
td(off)
tf
tr
td(on)
VDD = –6V
VGS = –4V
Drain Current, ID – A


A S O
IDP
1ms
10ms
100ms
ID
Operation in this area is limited by RDS(on).
Mounted on a ceramic board (1000mm2 × 0.8mm)
DC operation
Ta = 25°C
Single pulse
Drain Current, ID – A
Drain-to-Source Voltage, VDS – V


PD – Ta
Allowable Power Dissipation, PD – W
Mounted on a ceramic board (1000mm2 × 0.8mm)
Ambient Temperature, Ta – °C