Ordering number:EN3816

P-Channel Silicon MOSFET

2SJ231

Ultrahigh-Speed Switching Applications

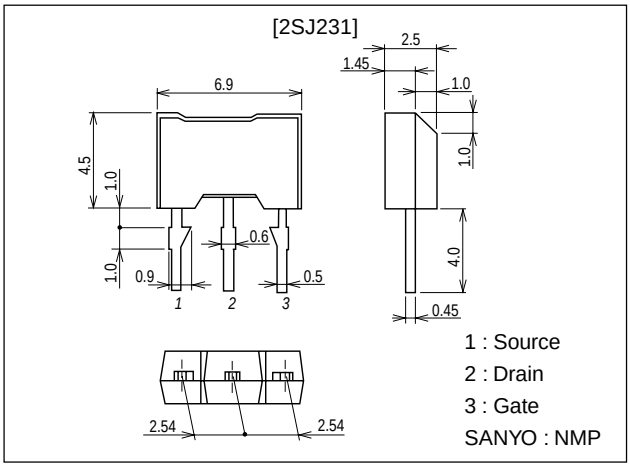
Features

- Low ON resistance.
- Ultrahigh-speed switching.
- Low-voltage drive.
- Meets radial taping.

Package Dimensions

unit:mm

2087A



Specifications

Absolute Maximum Ratings at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		–100	V
Gate-to-Source Voltage	V_{GSS}		±15	V
Drain Current (DC)	I_D		–0.5	A
Drain Current (Pulse)	I_{DP}	PW≤10μs, duty cycle≤1%	–2	A
Allowable Power Dissipation	P_D		1	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	–100			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=–100V, V_{GS}=0			–100	μA
Gate-to-Source Leakage Current	I_{GSS}	V_{GS}=±12V, V_{DS}=0			±10	μA
Cutoff Voltage	$V_{GS(off)}$	V_{DS}=–10V, I_D=–1mA	–1.0		–2.0	V
Forward Transfer Admittance	| yfs |	V_{DS}=–10V, I_D=–250mA	400	700		mS
Static Drain-to-Source ON-State Resistance	$R_{DS(on)}$	I_D=–250mA, V_{GS}=–10V		1.8	2.4	Ω
	$R_{DS(on)}$	I_D=–250mA, V_{GS}=–4V		2.4	3.5	Ω

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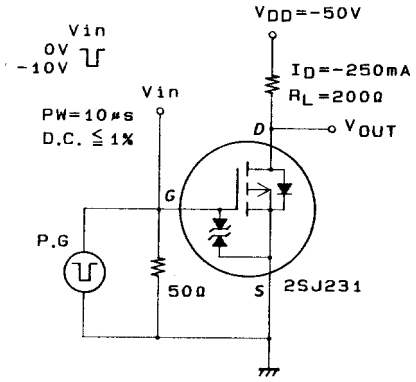
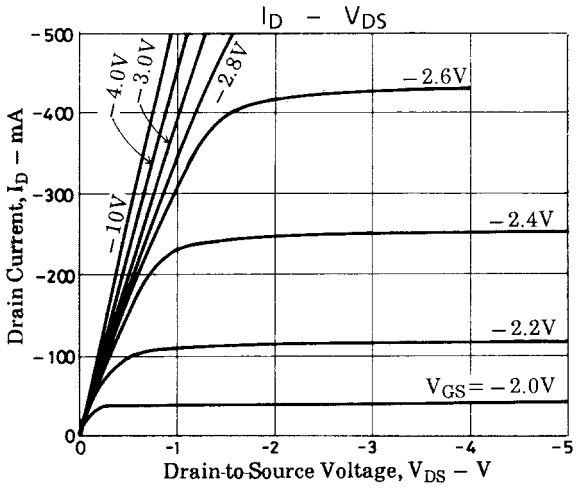
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

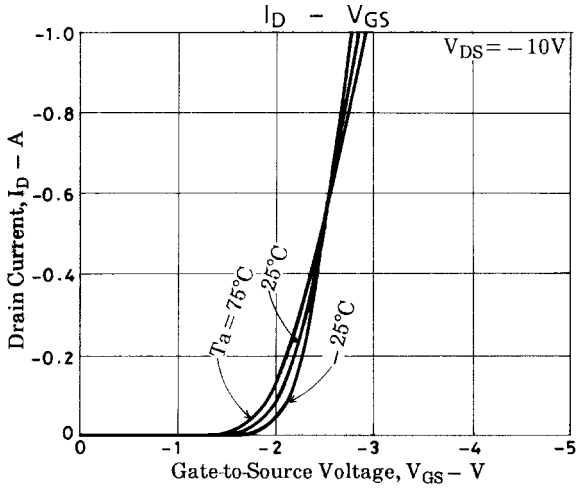
Continued from preceding page.

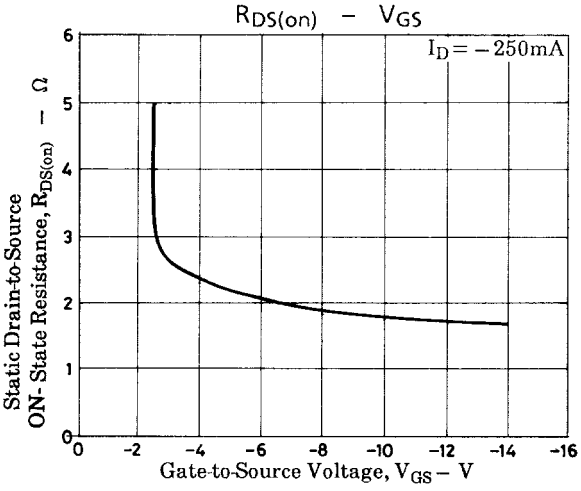
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss	V_{DS}=–20V, f=1MHz		160		pF
Output Capacitance	Coss	V_{DS}=–20V, f=1MHz		40		pF
Reverse Transfer Capacitance	Crss	V_{DS}=–20V, f=1MHz		6		pF
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit		10		ns
Rise Time	t_r	See specified Test Circuit		12		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit		80		ns
Fall Time	t_f	See specified Test Circuit		40		ns
Diode Forward Voltage	V_{SD}	I_S=–500mA, V_{GS}=0		–0.9		V

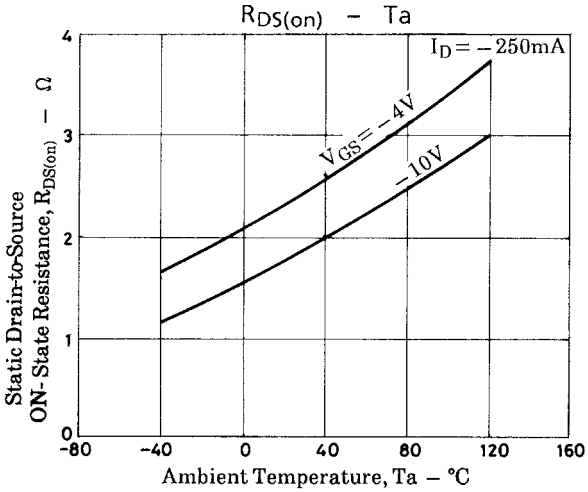
Switching Time Test Circuit

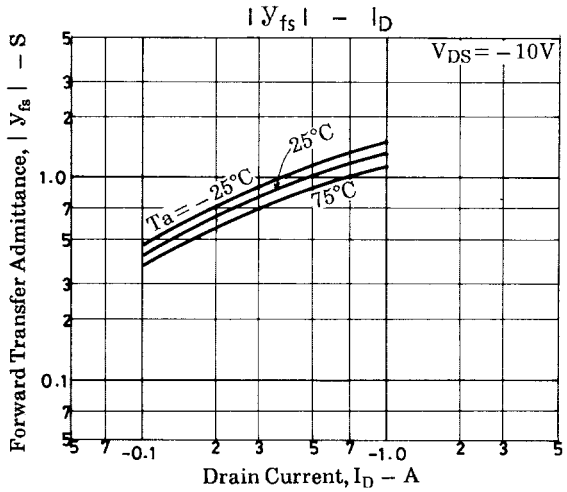


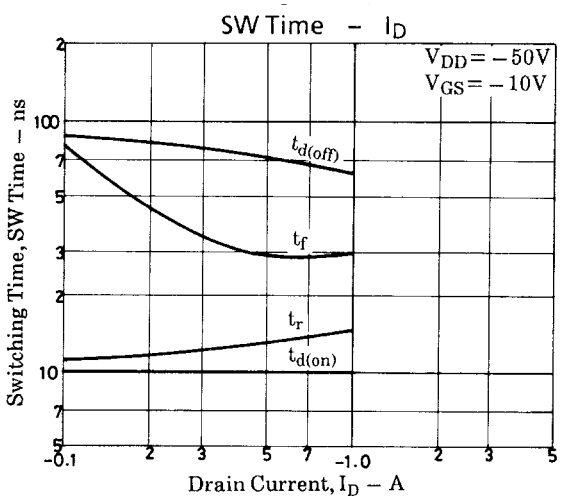


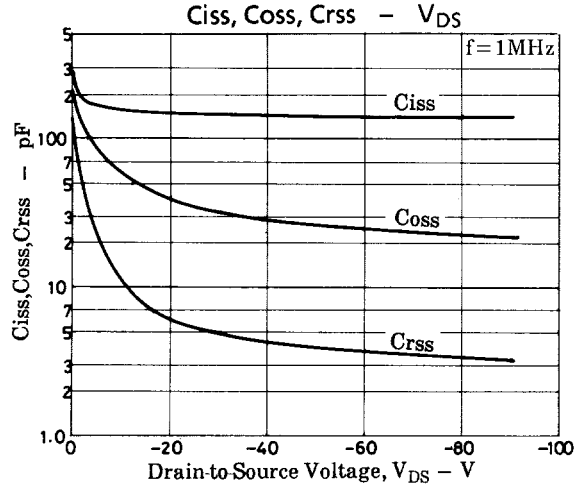


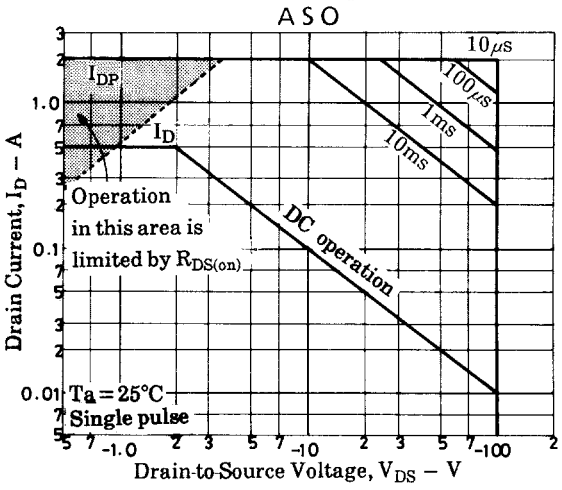


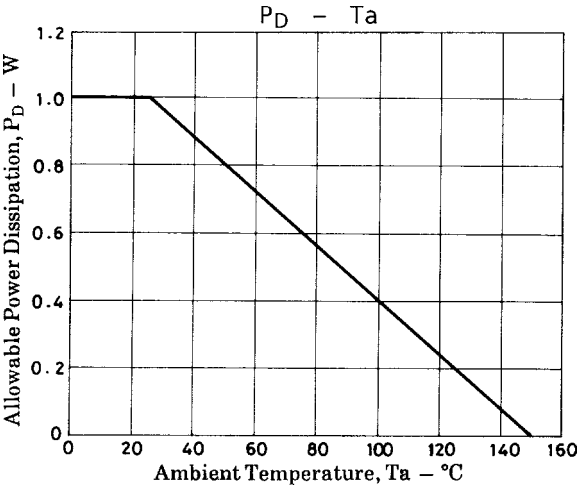



| yfs | – ID
VDS = –10V
25°C
Ta = –25°C
75°C
Forward Transfer Admittance, | yfs | – S
Drain Current, ID – A


SW Time – ID
VDD = –50V
VGS = –10V
td(off)
tf
tr
td(on)
Switching Time, SW Time – ns
Drain Current, ID – A


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


ASO
IDP
ID
10μs
100μs
1ms
10ms
DC operation
Operation
in this area is
limited by RDS(on)
Ta = 25°C
Single pulse
Drain Current, ID – A
Drain-to-Source Voltage, VDS – V


PD – Ta
Allowable Power Dissipation, PD – W
Ambient Temperature, Ta – °C