No.4316

2SJ306

P-Channel MOS Silicon FET

Very High-Speed Switching Applications

Features

- Low ON resistance.
- Very high-speed switching.
- Low-voltage drive.
- Micaless package facilitating mounting.

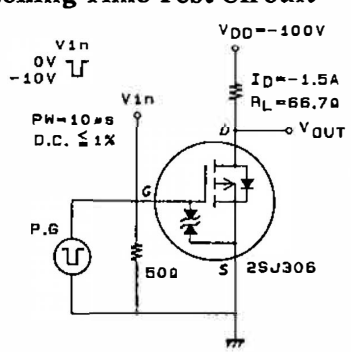
Absolute Maximum Ratings at Ta = 25°C

				unit
Drain to Source Voltage	V_{DSS}		−250	V
Gate to Source Voltage	V_{GSS}		±30	V
Drain Current(DC)	I_D		−3	A
Drain Current(Pulse)	I_{DP}	PW≦10μs, duty cycle≦1%	−12	A
Allowable Power Dissipation	P_D		2.0	W
		Tc = 25°C	25	W
Channel Temperature	Tch		150	°C
Storage Temperature	Tstg		−55 to +150	°C

Electrical Characteristics at Ta = 25°C

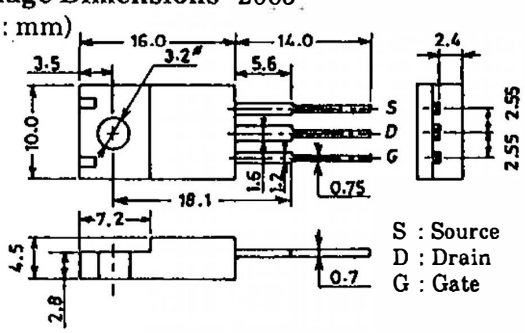
			min	typ	max	unit
D-S Breakdown Voltage	$V_{(BR)DSS}$	I_D = −1mA, V_{GS} = 0	−250			V
G-S Breakdown Voltage	$V_{(BR)GSS}$	I_G = ±100μA, V_{DS} = 0	±30			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = −250V, V_{GS} = 0			−100	μA
Gate to Source Leakage Current	I_{GSS}	V_{GS} = ±25V, V_{DS} = 0			±10	μA
Cutoff Voltage	$V_{GS(off)}$	V_{DS} = −10V, I_D = −1mA	−1.5		−2.5	V
Forward Transfer Admittance	$\|y_{fs}\|$	V_{DS} = −10V, I_D = −1.5A	1.5	2.5		S
Static Drain to Source on State Resistance	$R_{DS(on)}$	I_D = −1.5A, V_{GS} = −10V		1.5	2.0	Ω
Input Capacitance	Ciss	V_{DS} = −20V, f = 1MHz		600		pF
Output Capacitance	Coss	V_{DS} = −20V, f = 1MHz		110		pF
Reverse Transfer Capacitance	Crss	V_{DS} = −20V, f = 1MHz		50		pF
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		14		ns
Rise Time	t_r	〃		18		ns
Turn-OFF Delay Time	$t_{d(off)}$	〃		75		ns
Fall Time	t_f	〃		65		ns
Diode Forward Voltage	V_{SD}	I_S = −3A, V_{GS} = 0		−1.0	−1.5	V

Switching Time Test Circuit

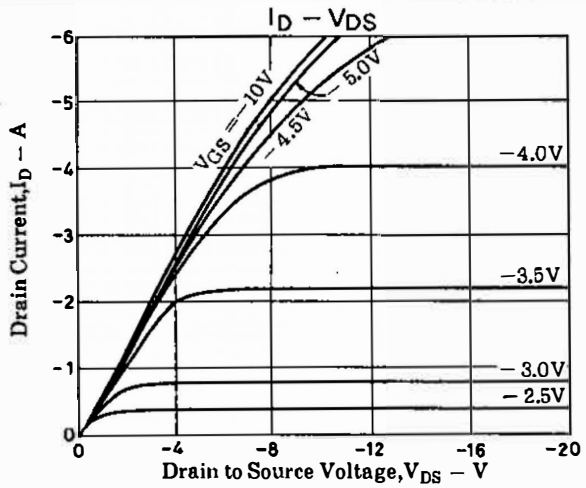


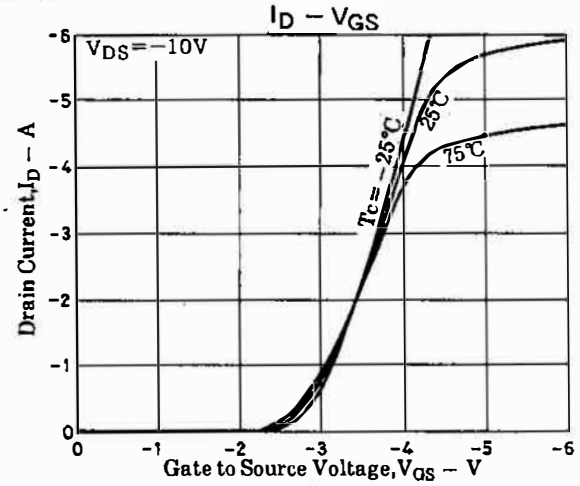
Package Dimensions 2063

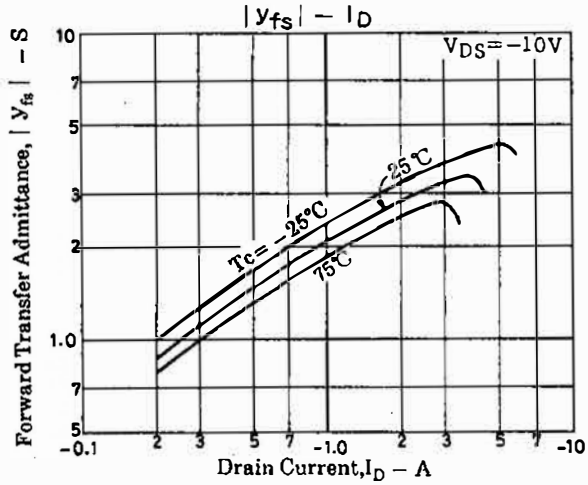
(unit : mm)

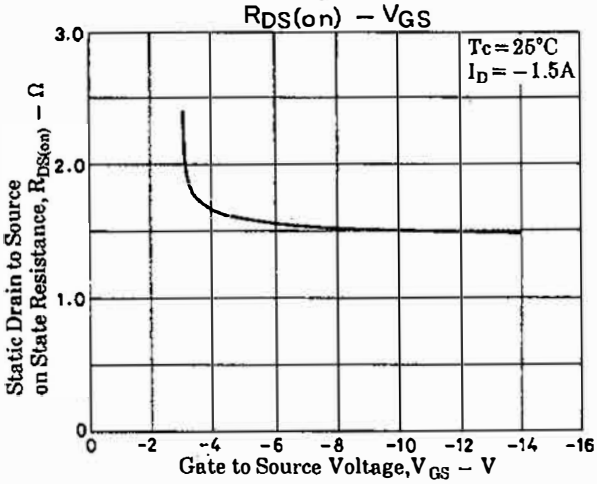


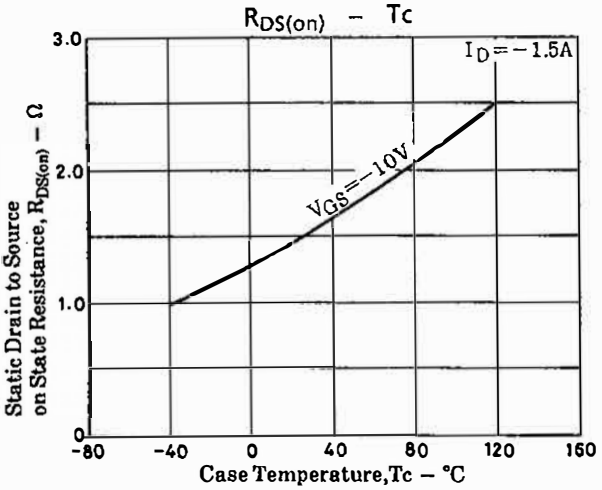
S : Source
D : Drain
G : Gate

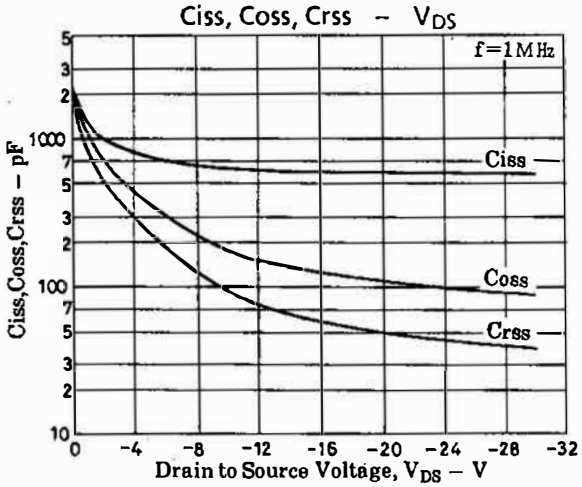

$I_D - V_{DS}$
Drain Current, I_D – A
V_{GS} = –10V
–5.0V
–4.5V
–4.0V
–3.5V
–3.0V
–2.5V
Drain to Source Voltage, V_{DS} – V

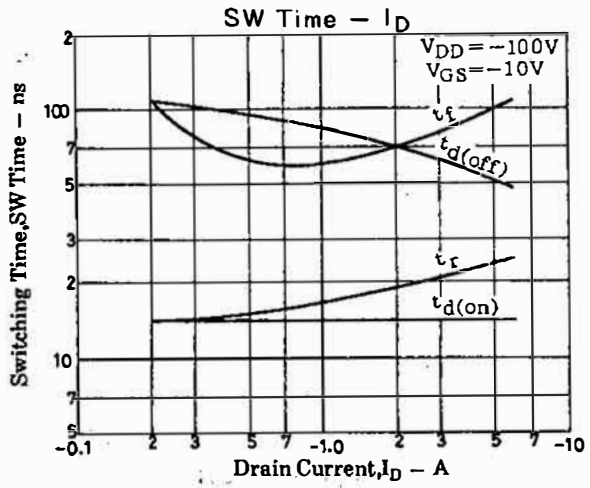

$I_D - V_{GS}$
V_{DS} = –10V
Tc = –25°C
25°C
75°C
Drain Current, I_D – A
Gate to Source Voltage, V_{GS} – V

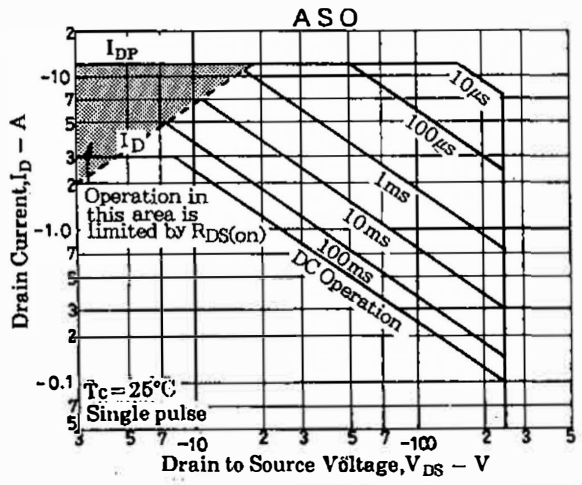

$|y_{fs}| - I_D$
V_{DS} = –10V
Tc = –25°C
25°C
75°C
Forward Transfer Admittance, $|y_{fs}|$ – S
Drain Current, I_D – A

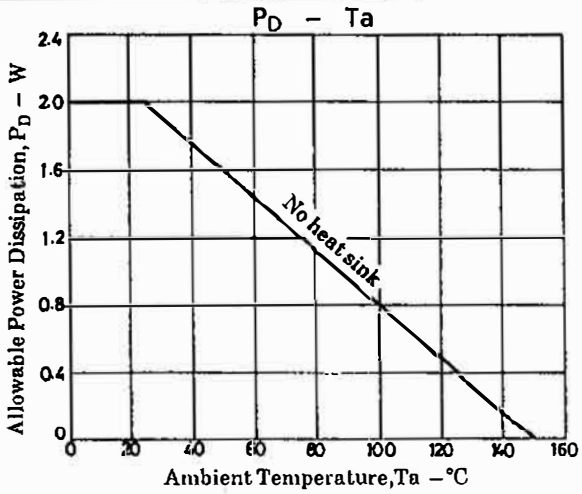

$R_{DS(on)} - V_{GS}$
Tc = 25°C
I_D = –1.5A
Static Drain to Source on State Resistance, $R_{DS(on)}$ – Ω
Gate to Source Voltage, V_{GS} – V

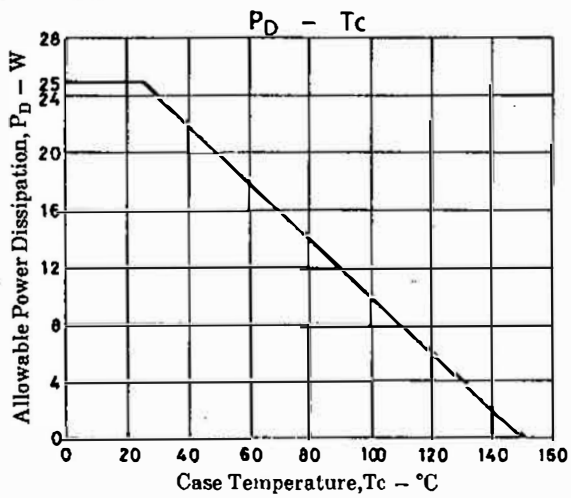

$R_{DS(on)} - Tc$
I_D = –1.5A
V_{GS} = –10V
Static Drain to Source on State Resistance, $R_{DS(on)}$ – Ω
Case Temperature, Tc – °C


Ciss, Coss, Crss – V_{DS}
f = 1MHz
Ciss
Coss
Crss
Ciss, Coss, Crss – pF
Drain to Source Voltage, V_{DS} – V


SW Time – I_D
V_{DD} = –100V
V_{GS} = –10V
t_f
$t_{d(off)}$
t_r
$t_{d(on)}$
Switching Time, SW Time – ns
Drain Current, I_D – A


ASO
I_{DP}
I_D
10μs
100μs
1ms
10ms
100ms
DC Operation
Operation in this area is limited by $R_{DS(on)}$
Tc = 25°C
Single pulse
Drain Current, I_D – A
Drain to Source Voltage, V_{DS} – V


P_D – Ta
Allowable Power Dissipation, P_D – W
2.4
2.0
1.6
1.2
0.8
0.4
0
No heat sink
0
20
40
60
80
100
120
140
160
Ambient Temperature, Ta – °C


P_D – Tc
Allowable Power Dissipation, P_D – W
28
25
24
20
16
12
8
4
0
0
20
40
60
80
100
120
140
160
Case Temperature, Tc – °C