Ordering number : ENN7552

P-Channel Silicon MOSFET

2SJ658

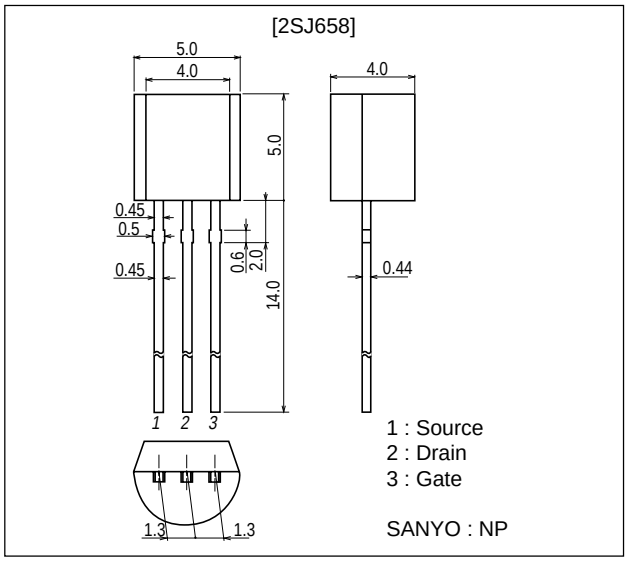
High-Speed Switching Applications

Features

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

Package Dimensions

unit : mm
2178



Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		−20	V
Gate-to-Source Voltage	V_{GSS}		±10	V
Drain Current (DC)	I_D		−2	A
Drain Current (Pulse)	I_{DP}	PW≤10μs, duty cycle≤1%	−8	A
Allowable Power Dissipation	P_D		0.7	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	−20			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=−20V, V_{GS}=0			−10	μA

Continued on next page.

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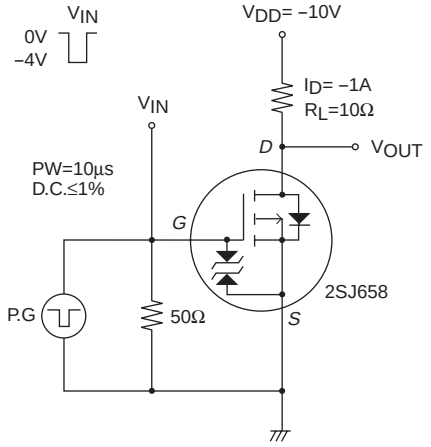
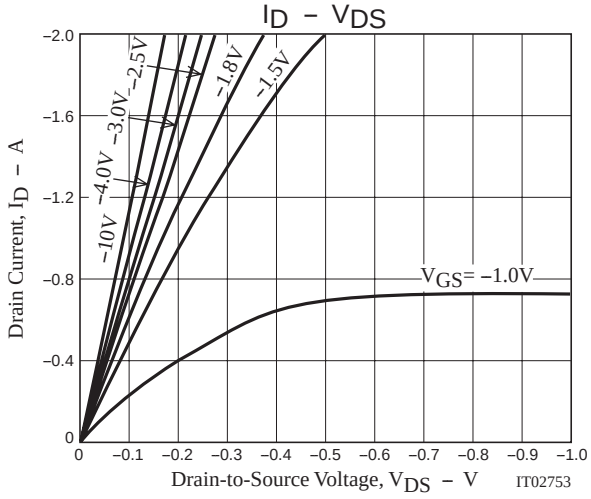
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

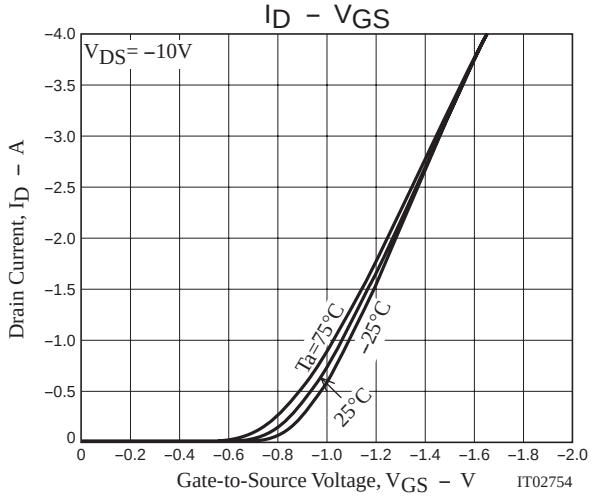
Continued from preceding page.

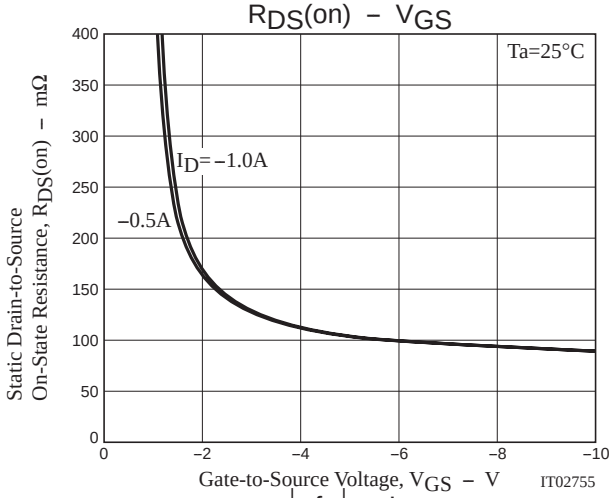
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Gate-to-Source Leakage Current	I_{GSS}	V_{GS}=±8V, V_{DS}=0			±10	μA
Cutoff Voltage	V_{GS}(off)	V_{DS}=−10V, I_D=−1mA	−0.3		−1.4	V
Forward Transfer Admittance	|yfs|	V_{DS}=−10V, I_D=−1A	1.8	3		S
Static Drain-to-Source On-State Resistance	R_{DS}(on)1	I_D=−1A, V_{GS}=−4V		115	150	mΩ
	R_{DS}(on)2	I_D=−0.5A, V_{GS}=−2.5V		145	210	mΩ
Input Capacitance	Ciss	V_{DS}=−10V, f=1MHz		410		pF
Output Capacitance	Coss	V_{DS}=−10V, f=1MHz		60		pF
Reverse Transfer Capacitance	Crss	V_{DS}=−10V, f=1MHz		40		pF
Turn-ON Delay Time	t_d(on)	See specified Test Circuit.		9		ns
Rise Time	t_r	See specified Test Circuit.		27		ns
Turn-OFF Delay Time	t_d(off)	See specified Test Circuit.		42		ns
Fall Time	t_f	See specified Test Circuit.		38		ns
Total Gate Charge	Qg	V_{DS}=−10V, V_{GS}=−4V, I_D=−2A		4.5		nC
Gate-to-Source Charge	Qgs	V_{DS}=−10V, V_{GS}=−4V, I_D=−2A		0.6		nC
Gate-to-Drain “Miller” Charge	Qgd	V_{DS}=−10V, V_{GS}=−4V, I_D=−2A		1.2		nC
Diode Forward Voltage	V_{SD}	I_S=−2A, V_{GS}=0		−0.9	−1.2	V

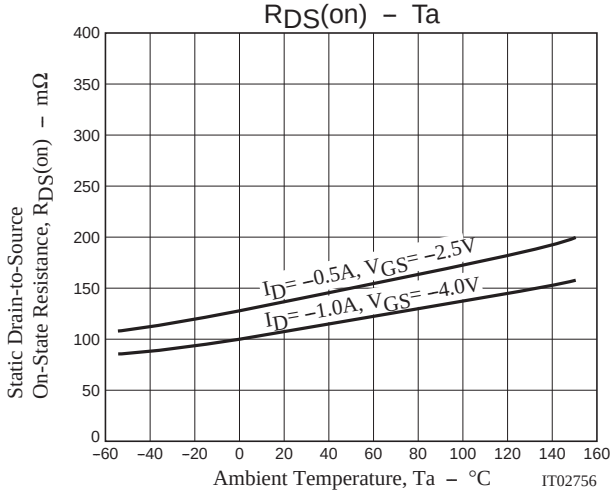
Switching Time Test Circuit

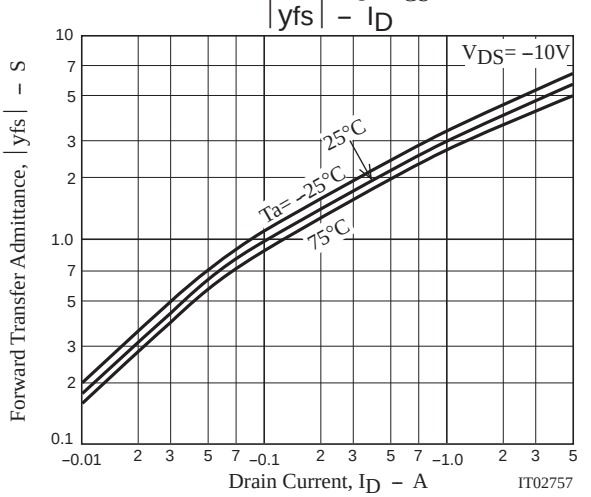


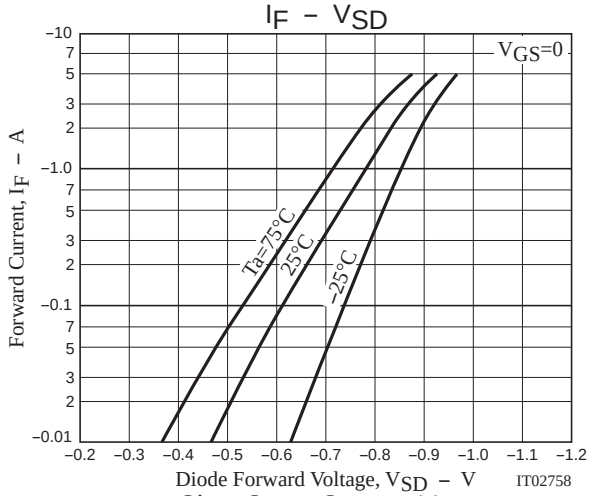


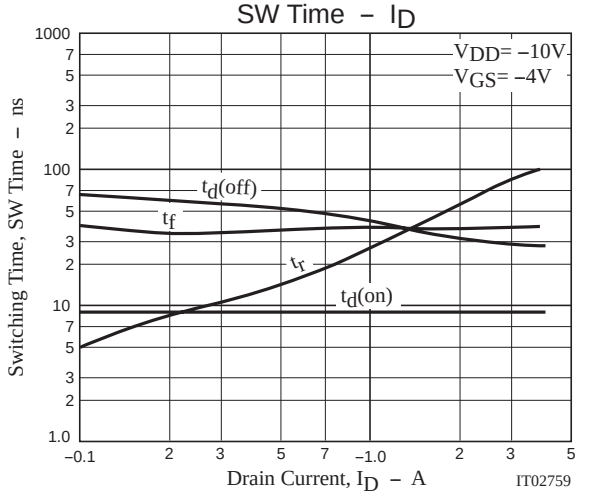


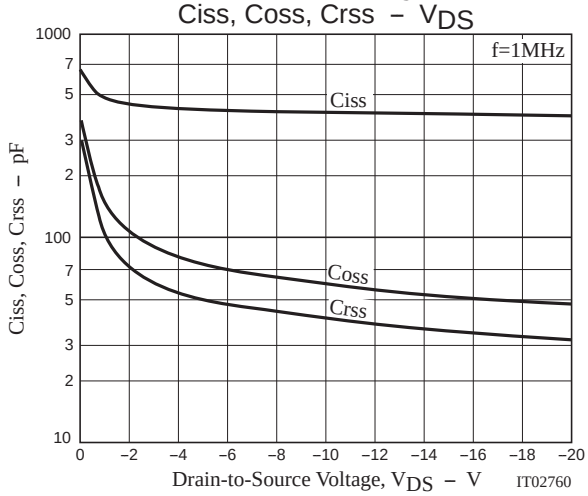

RDS(on) – VGS
Ta=25°C
ID= –1.0A
–0.5A
Static Drain-to-Source On-State Resistance, RDS(on) – mΩ
Gate-to-Source Voltage, VGS – V
IT02755

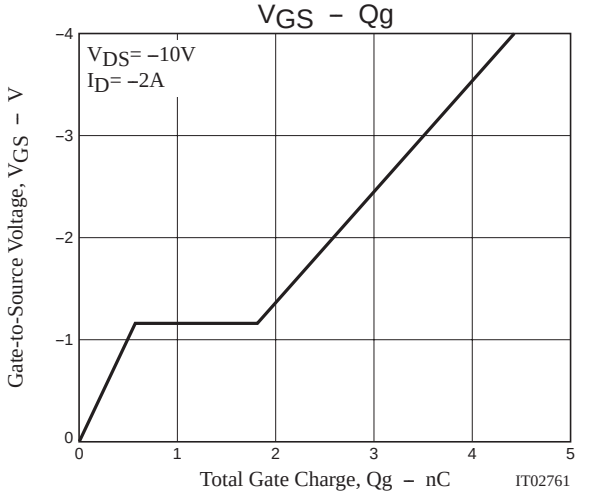

RDS(on) – Ta
ID= –0.5A, VGS= –2.5V
ID= –1.0A, VGS= –4.0V
Static Drain-to-Source On-State Resistance, RDS(on) – mΩ
Ambient Temperature, Ta – °C
IT02756

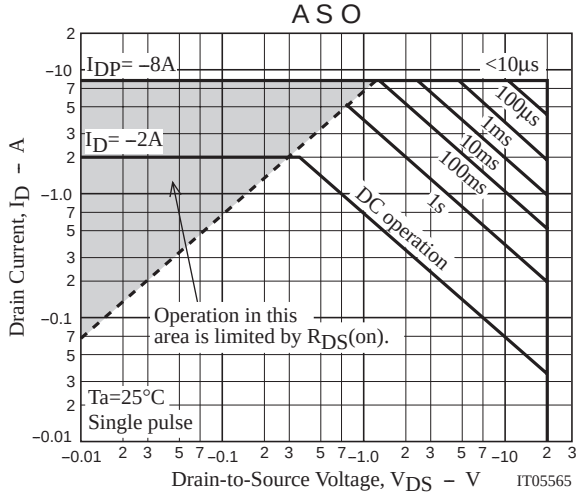

|yfs| – ID
VDS= –10V
25°C
Ta= –25°C
75°C
Forward Transfer Admittance, |yfs| – S
Drain Current, ID – A
IT02757

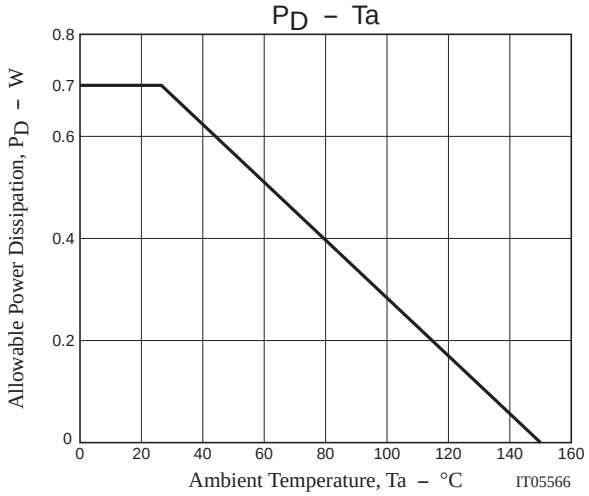

IF – VSD
VGS=0
Ta=75°C
25°C
–25°C
Forward Current, IF – A
Diode Forward Voltage, VSD – V
IT02758


SW Time – ID
VDD= –10V
VGS= –4V
td(off)
tf
tr
td(on)
Switching Time, SW Time – ns
Drain Current, ID – A
IT02759


Ciss, Coss, Crss – VDS
f=1MHz
Ciss
Coss
Crss
Ciss, Coss, Crss – pF
Drain-to-Source Voltage, VDS – V
IT02760


VGS – Qg
VDS= –10V
ID= –2A
Gate-to-Source Voltage, VGS – V
Total Gate Charge, Qg – nC
IT02761


A S O
IDP= –8A
ID= –2A
<10µs
100µs
1ms
10ms
100ms
1s
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
IT05565



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