Ordering number : EN8354A

SANYO Semiconductors

DATA SHEET

P-Channel Silicon MOSFET

2SJ670 — General-Purpose Switching Device Applications

Features

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

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}		±20	V
Drain Current (DC)	I_D		−1.5	A
Drain Current (Pulse)	I_{DP}	PW≤10μs, duty cycle≤1%	−6	A
Allowable Power Dissipation	P_D	Mounted on a ceramic board (600mm²×0.8mm)	1.5	W
		Tc=25°C	3.5	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}=0V	−100			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=−100V, V_{GS}=0V			−1	μA
Gate-to-Source Leakage Current	I_{GSS}	V_{GS}=±16V, V_{DS}=0V			±10	μA
Cutoff Voltage	V_{GS}(off)	V_{DS}=−10V, I_D=−1mA	−1.2		−2.6	V
Forward Transfer Admittance	|yfs|	V_{DS}=−10V, I_D=−0.8A	1.3	2.3		S
Static Drain-to-Source On-State Resistance	R_{DS}(on)1	I_D=−0.8A, V_{GS}=−10V		410	535	mΩ
	R_{DS}(on)2	I_D=−0.8A, V_{GS}=−4V		530	745	mΩ
Input Capacitance	Ciss	V_{DS}=−20V, f=1MHz		535		pF
Output Capacitance	Coss	V_{DS}=−20V, f=1MHz		43		pF
Reverse Transfer Capacitance	Crss	V_{DS}=−20V, f=1MHz		31		pF
Turn-ON Delay Time	t_d(on)	See specified Test Circuit.		9		ns
Rise Time	t_r	See specified Test Circuit.		4.5		ns
Turn-OFF Delay Time	t_d(off)	See specified Test Circuit.		62		ns
Fall Time	t_f	See specified Test Circuit.		34		ns

Marking : NA

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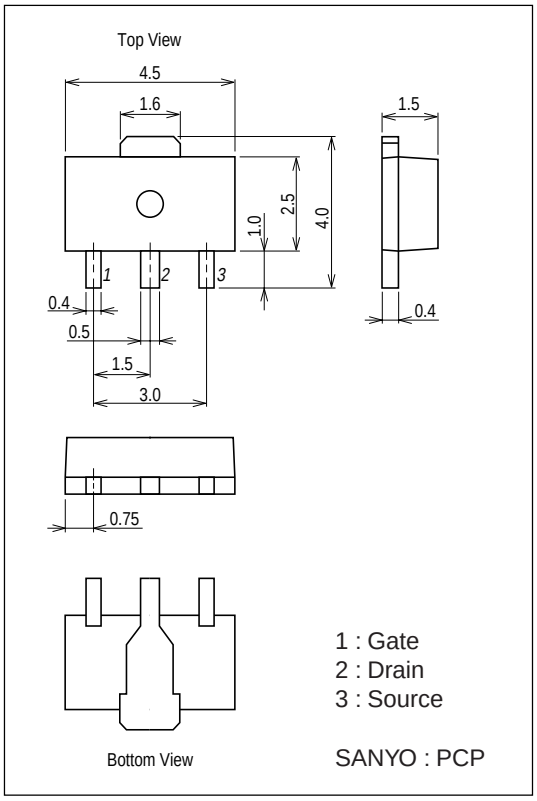
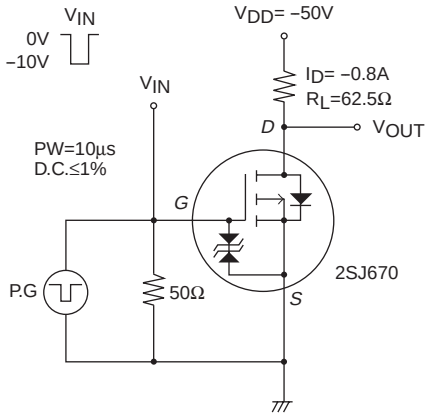
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Total Gate Charge	Qg	V_{DS}=-50V, V_{GS}=-10V, I_D=-1.5A		11		nC
Gate-to-Source Charge	Qgs	V_{DS}=-50V, V_{GS}=-10V, I_D=-1.5A		2.6		nC
Gate-to-Drain “Miller” Charge	Qgd	V_{DS}=-50V, V_{GS}=-10V, I_D=-1.5A		2		nC
Diode Forward Voltage	V_{SD}	I_S=-1.5A, V_{GS}=0V		-0.83	-1.2	V

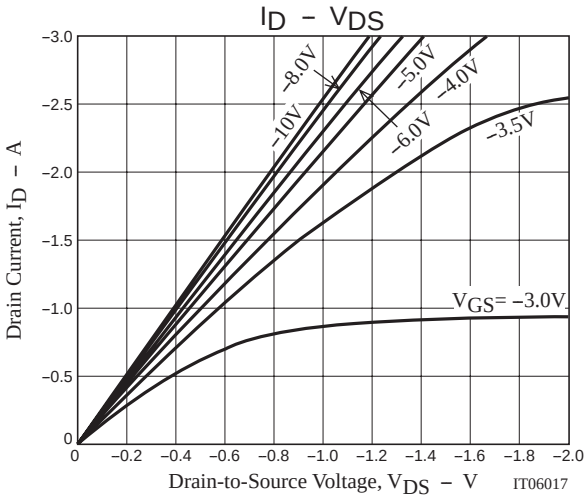
Package Dimensions

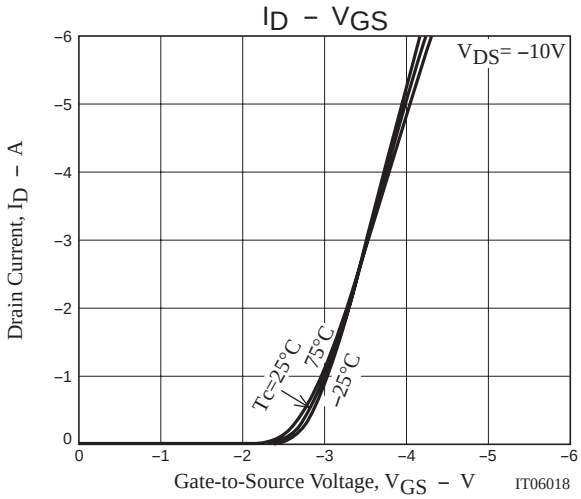
unit : mm (typ)
7007A-003

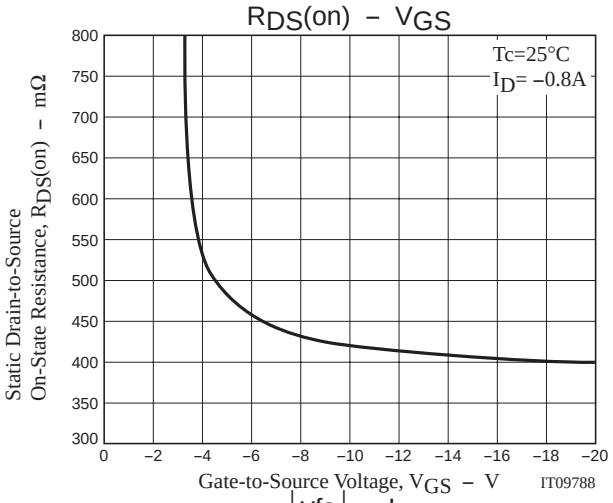


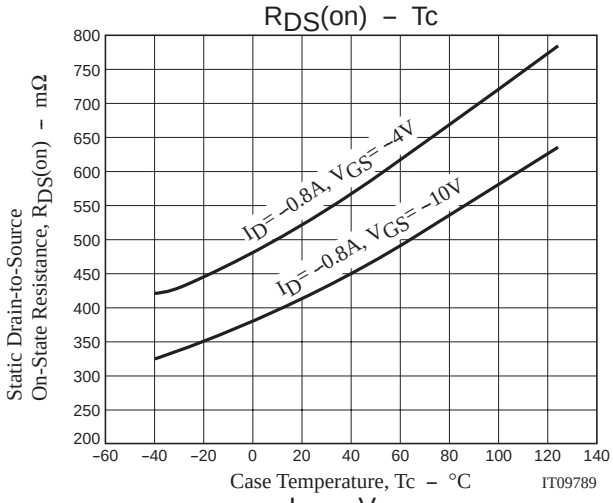
Switching Time Test Circuit

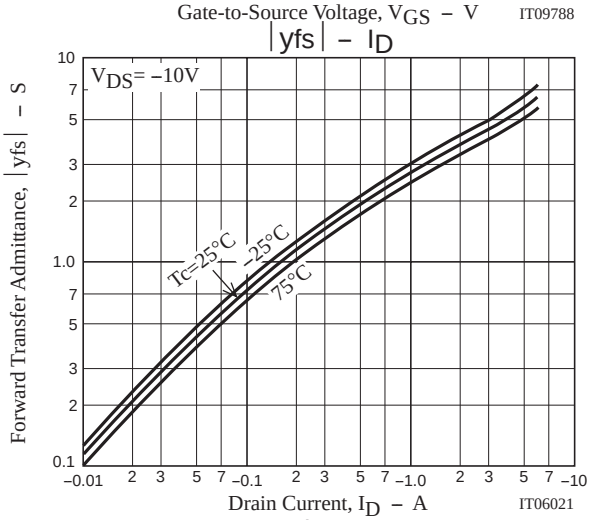


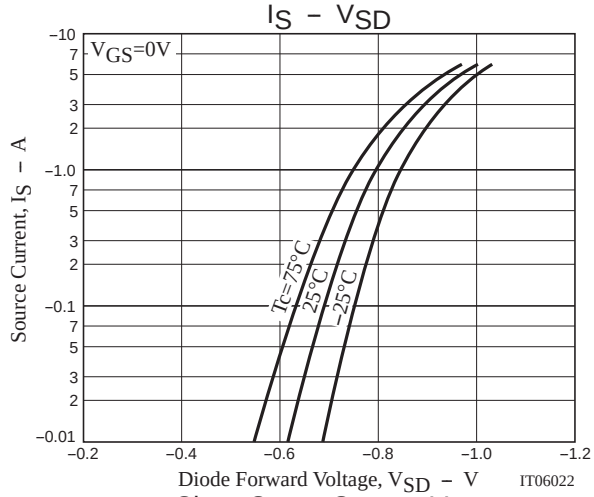


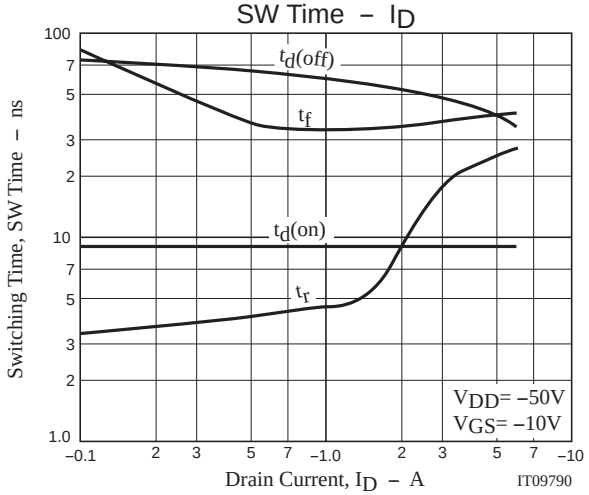


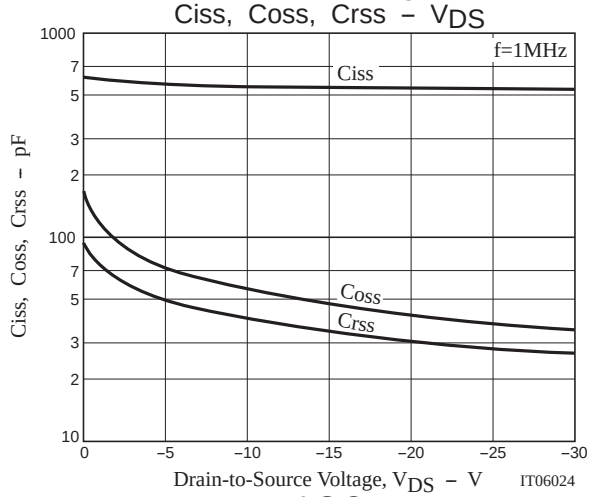

RDS(on) – VGS
Tc=25°C
ID= –0.8A
Static Drain-to-Source On-State Resistance, RDS(on) – mΩ
Gate-to-Source Voltage, VGS – V
IT09788

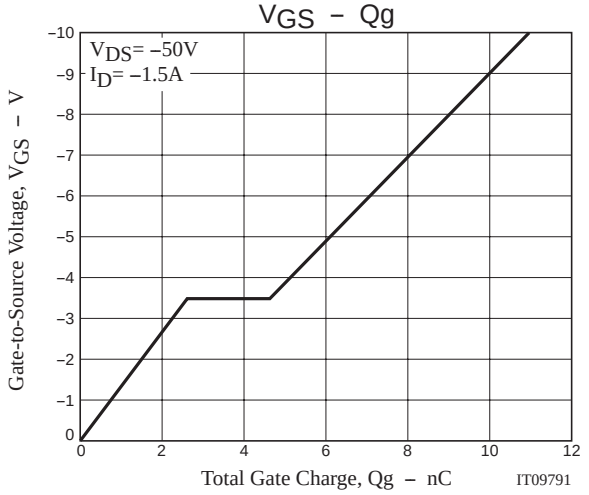

RDS(on) – Tc
ID= –0.8A, VGS= –4V
ID= –0.8A, VGS= –10V
Static Drain-to-Source On-State Resistance, RDS(on) – mΩ
Case Temperature, Tc – °C
IT09789

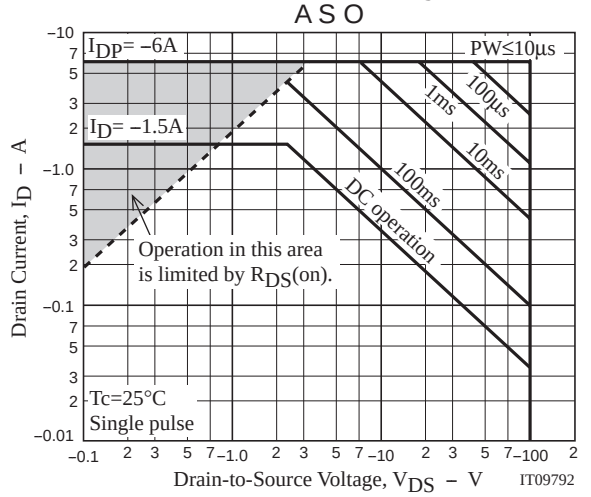

|yfs| – ID
VDS= –10V
Tc=25°C
–25°C
75°C
Forward Transfer Admittance, |yfs| – S
Drain Current, ID – A
IT06021

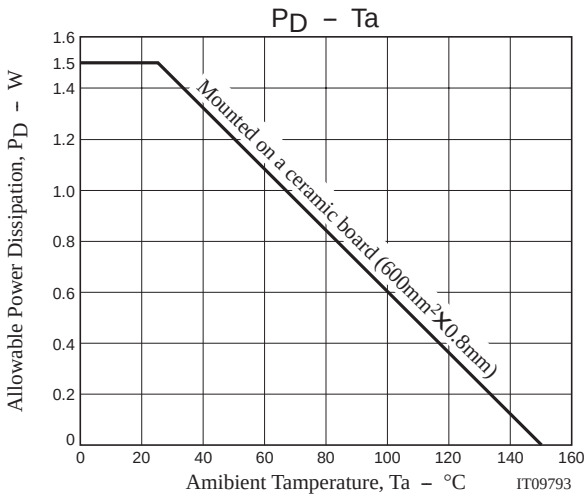

IS – VSD
VGS=0V
Tc=75°C
25°C
–25°C
Source Current, IS – A
Diode Forward Voltage, VSD – V
IT06022

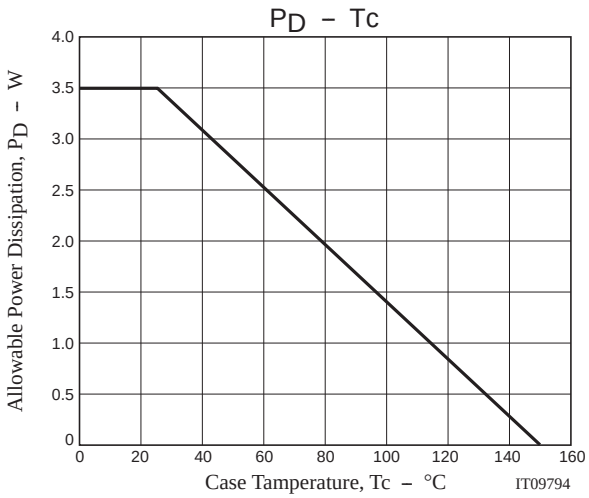

SW Time – ID
td(off)
tf
td(on)
tr
VDD= –50V
VGS= –10V
Switching Time, SW Time – ns
Drain Current, ID – A
IT09790


Ciss, Coss, Crss – VDS
f=1MHz
Ciss
Coss
Crss
Ciss, Coss, Crss – pF
Drain-to-Source Voltage, VDS – V
IT06024


VGS – Qg
VDS= –50V
ID= –1.5A
Gate-to-Source Voltage, VGS – V
Total Gate Charge, Qg – nC
IT09791


A S O
IDP= –6A
PW≤10μs
ID= –1.5A
100μs
1ms
10ms
100ms
DC operation
Operation in this area is limited by RDS(on).
Tc=25°C
Single pulse
Drain Current, ID – A
Drain-to-Source Voltage, VDS – V
IT09792





Note on usage : Since the 2SJ670 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.