



# 2SJ670 — P-Channel Silicon MOSFET

## General-Purpose Switching Device Applications

### Features

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

### Specifications

**Absolute Maximum Ratings** at  $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	$V_{DS}$		-100	V
Gate-to-Source Voltage	$V_{GS}$		$\pm 20$	V
Drain Current (DC)	$I_D$		-1.5	A
Drain Current (Pulse)	$I_{DP}$	$PW \leq 10\mu\text{s}$ , duty cycle $\leq 1\%$	-6	A
Allowable Power Dissipation	$P_D$	Mounted on a ceramic board (600mm <sup>2</sup> X0.8mm)	1.5	W
		$T_c=25^\circ\text{C}$	3.5	W
Channel Temperature	$T_{ch}$		150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$		-55 to +150	$^\circ\text{C}$

**Electrical Characteristics** at  $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=-1\text{mA}$ , $V_{GS}=0\text{V}$	-100			V
Zero-Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=-100\text{V}$ , $V_{GS}=0\text{V}$			-1	$\mu\text{A}$
Gate-to-Source Leakage Current	$I_{GSS}$	$V_{GS}=\pm 16\text{V}$ , $V_{DS}=0\text{V}$			$\pm 10$	$\mu\text{A}$
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=-10\text{V}$ , $I_D=-1\text{mA}$	-1.2		-2.6	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=-10\text{V}$ , $I_D=-0.8\text{A}$	1.3	2.3		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=-0.8\text{A}$ , $V_{GS}=-10\text{V}$		410	535	$\text{m}\Omega$
	$R_{DS(on)2}$	$I_D=-0.8\text{A}$ , $V_{GS}=-4\text{V}$		530	745	$\text{m}\Omega$
Input Capacitance	$C_{iss}$	$V_{DS}=-20\text{V}$ , $f=1\text{MHz}$		535		pF
Output Capacitance	$C_{oss}$	$V_{DS}=-20\text{V}$ , $f=1\text{MHz}$		43		pF
Reverse Transfer Capacitance	$C_{rss}$	$V_{DS}=-20\text{V}$ , $f=1\text{MHz}$		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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# 2SJ670

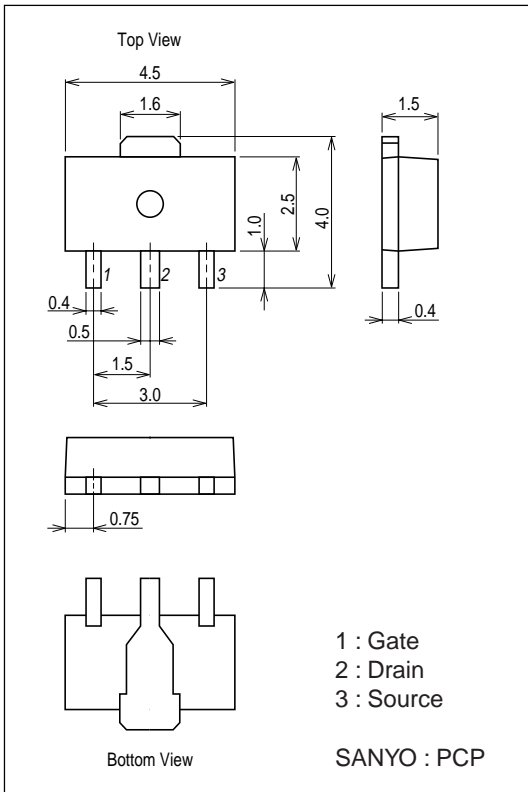
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Total Gate Charge	Qg	V <sub>DS</sub> =-50V, V <sub>GS</sub> =-10V, I <sub>D</sub> =-1.5A		11		nC
Gate-to-Source Charge	Qgs	V <sub>DS</sub> =-50V, V <sub>GS</sub> =-10V, I <sub>D</sub> =-1.5A		2.6		nC
Gate-to-Drain "Miller" Charge	Qgd	V <sub>DS</sub> =-50V, V <sub>GS</sub> =-10V, I <sub>D</sub> =-1.5A		2		nC
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =-1.5A, V <sub>GS</sub> =0V		-0.83	-1.2	V

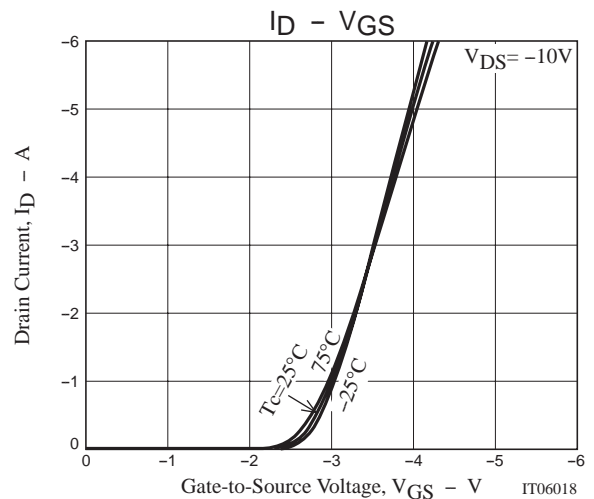
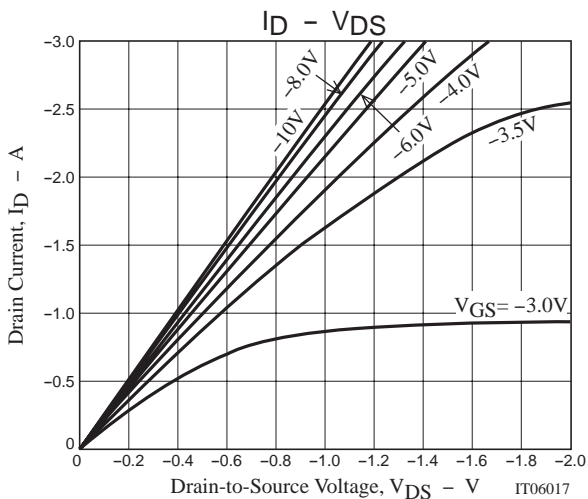
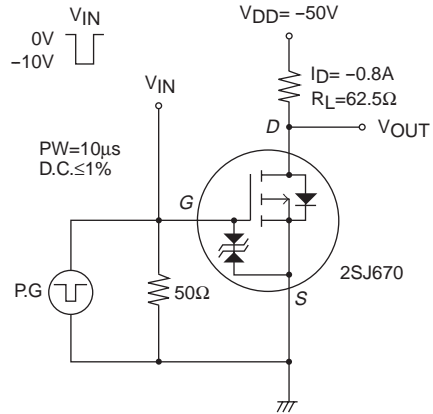
## Package Dimensions

unit : mm (typ)

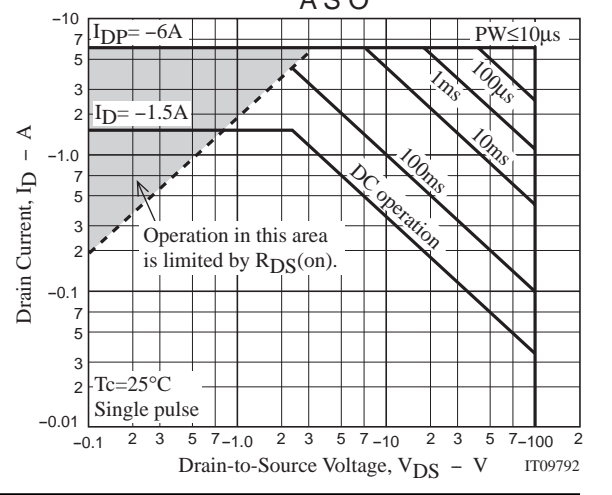
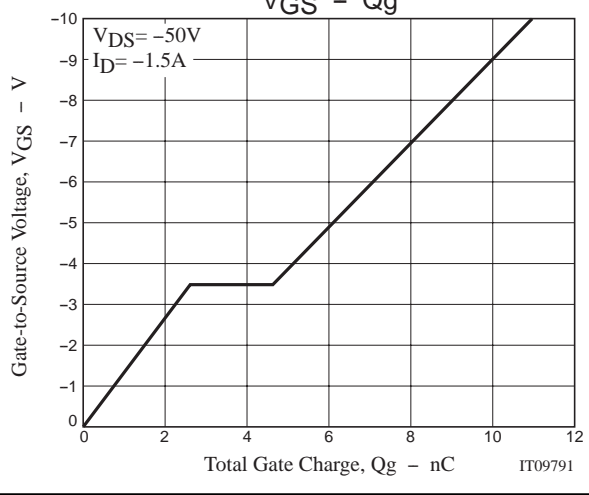
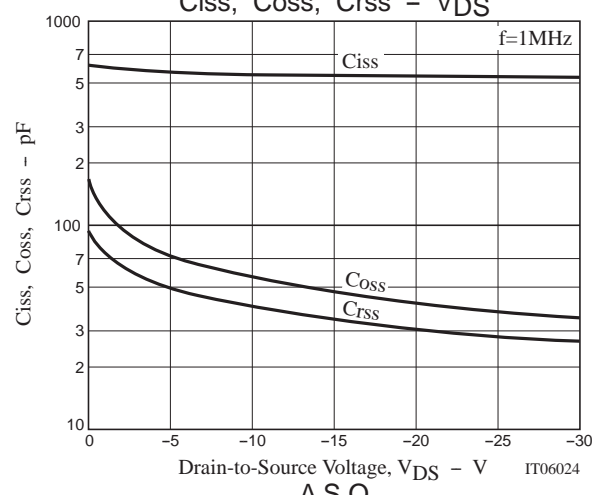
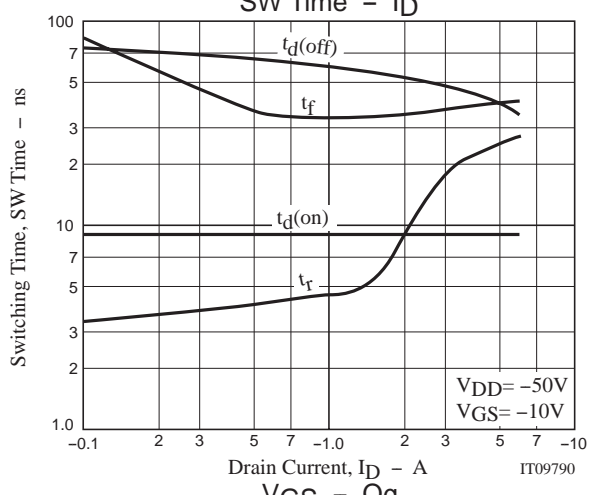
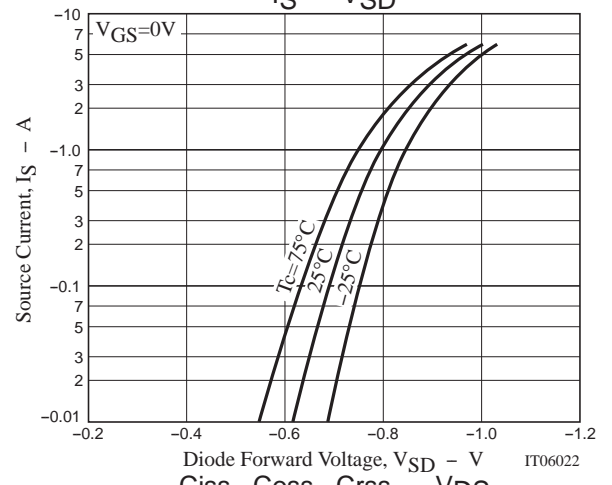
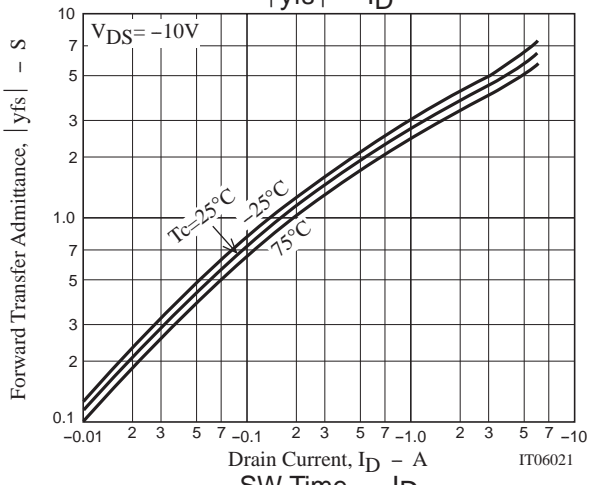
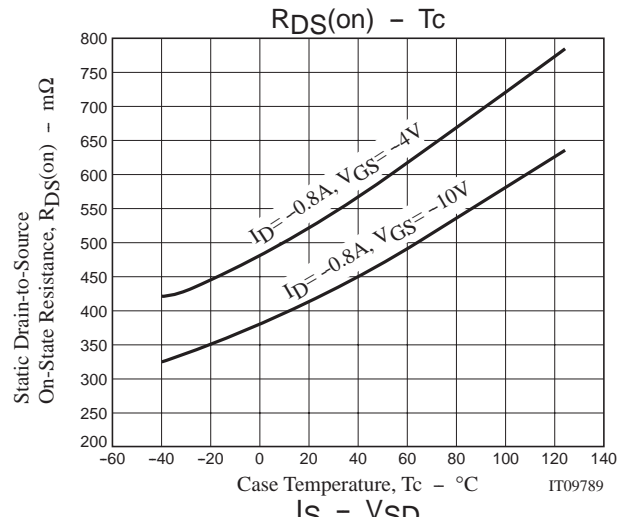
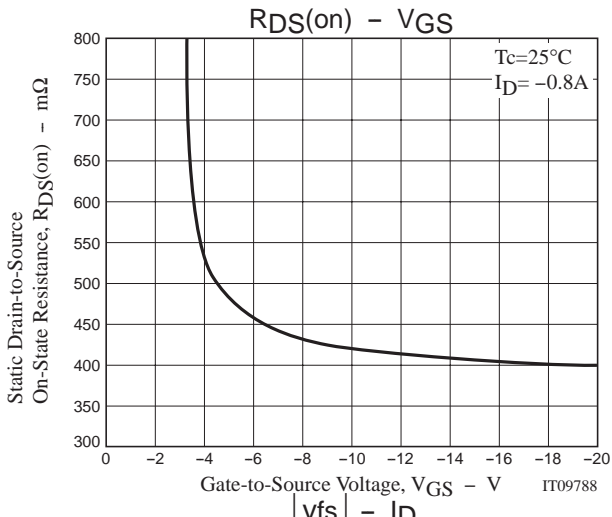
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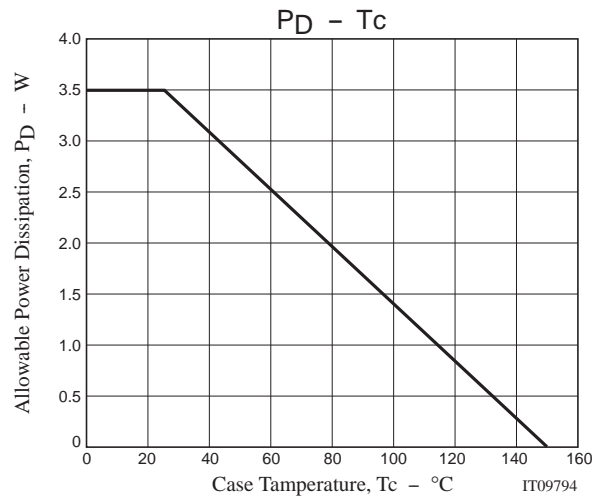
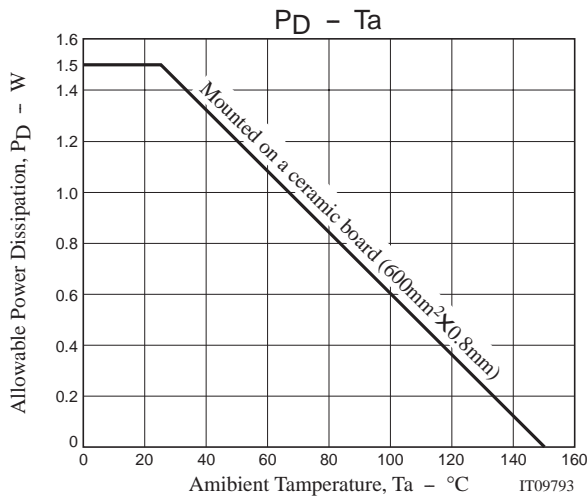
## Switching Time Test Circuit



# 2SJ670



## 2SJ670



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

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