



SANYO Semiconductors

## DATA SHEET

# 2SJ646 — P-Channel Silicon MOSFET

## 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 <sub>DSS</sub>		-30	V
Gate-to-Source Voltage	V <sub>GSS</sub>		±20	V
Drain Current (DC)	I <sub>D</sub>		-8	A
Drain Current (Pulse)	I <sub>DP</sub>	PW≤10μs, duty cycle≤1%	-32	A
Allowable Power Dissipation	P <sub>D</sub>		1	W
		T <sub>c</sub> =25°C	15	W
Channel Temperature	T <sub>ch</sub>		150	°C
Storage Temperature	T <sub>stg</sub>		-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 <sub>D</sub> =-1mA, V <sub>GS</sub> =0V	-30			V
Zero-Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =-30V, V <sub>GS</sub> =0V			-1	μA
Gate-to-Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =±16V, V <sub>DS</sub> =0V			±10	μA
Cutoff Voltage	V <sub>GS(off)</sub>	V <sub>DS</sub> =-10V, I <sub>D</sub> =-1mA	-1.2		-2.6	V
Forward Transfer Admittance	y <sub>fs</sub>	V <sub>DS</sub> =-10V, I <sub>D</sub> =-4A	3.3	5.5		S
Static Drain-to-Source On-State Resistance	R <sub>DS(on)1</sub>	I <sub>D</sub> =-4A, V <sub>GS</sub> =-10V		58	75	mΩ
	R <sub>DS(on)2</sub>	I <sub>D</sub> =-2A, V <sub>GS</sub> =-4.5V		97	136	mΩ
	R <sub>DS(on)3</sub>	I <sub>D</sub> =-2A, V <sub>GS</sub> =-4V		110	154	mΩ
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =-10V, f=1MHz		510		pF
Output Capacitance	C <sub>oss</sub>	V <sub>DS</sub> =-10V, f=1MHz		115		pF
Reverse Transfer Capacitance	C <sub>rss</sub>	V <sub>DS</sub> =-10V, f=1MHz		78		pF

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**SANYO Electric Co., Ltd. Semiconductor Company**

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

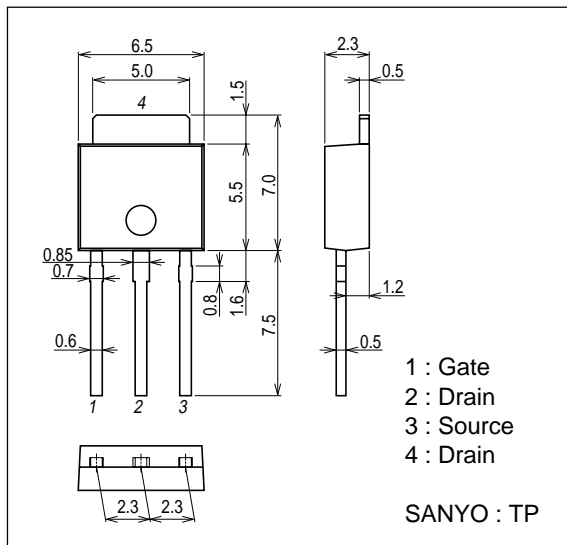
# 2SJ646

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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Turn-ON Delay Time	$t_d(\text{on})$	See specified Test Circuit.		11		ns
Rise Time	$t_r$	See specified Test Circuit.		40		ns
Turn-OFF Delay Time	$t_d(\text{off})$	See specified Test Circuit.		40		ns
Fall Time	$t_f$	See specified Test Circuit.		30		ns
Total Gate Charge	$Q_g$	$V_{DS}=-10V, V_{GS}=-10V, I_D=-8A$		11		nC
Gate-to-Source Charge	$Q_{gs}$	$V_{DS}=-10V, V_{GS}=-10V, I_D=-8A$		2.4		nC
Gate-to-Drain "Miller" Charge	$Q_{gd}$	$V_{DS}=-10V, V_{GS}=-10V, I_D=-8A$		1.7		nC
Diode Forward Voltage	$V_{SD}$	$I_S=-8A, V_{GS}=0V$		-1.0	-1.2	V

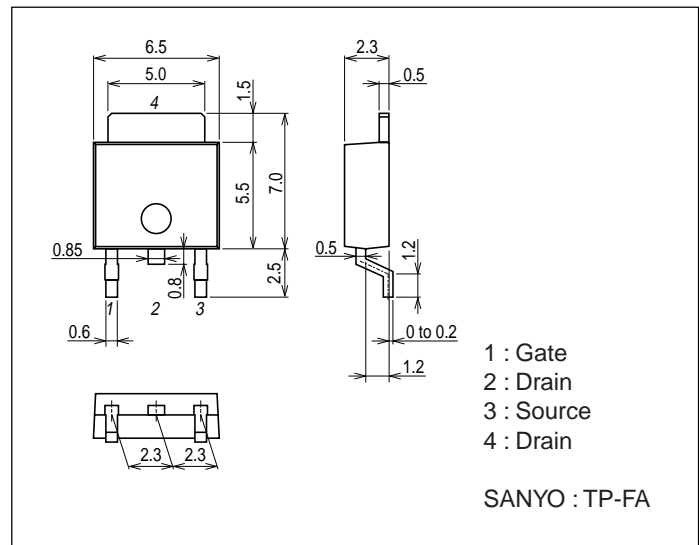
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unit : mm  
7518-004

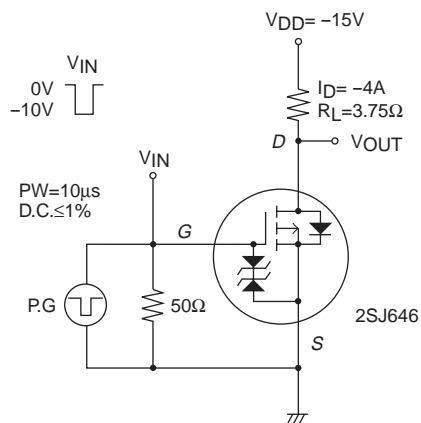


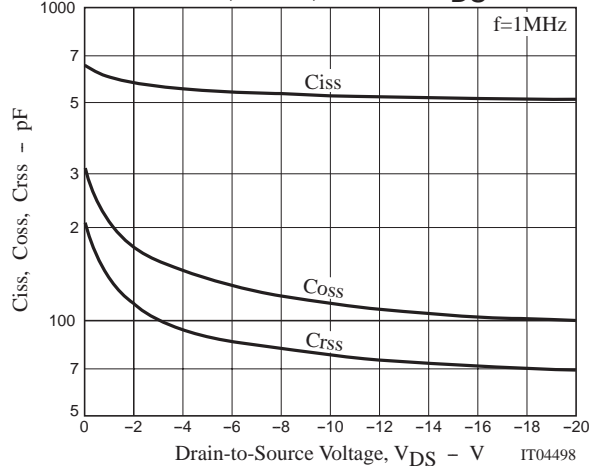
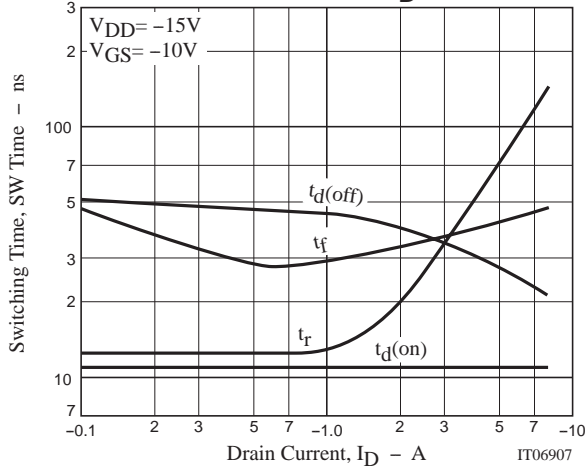
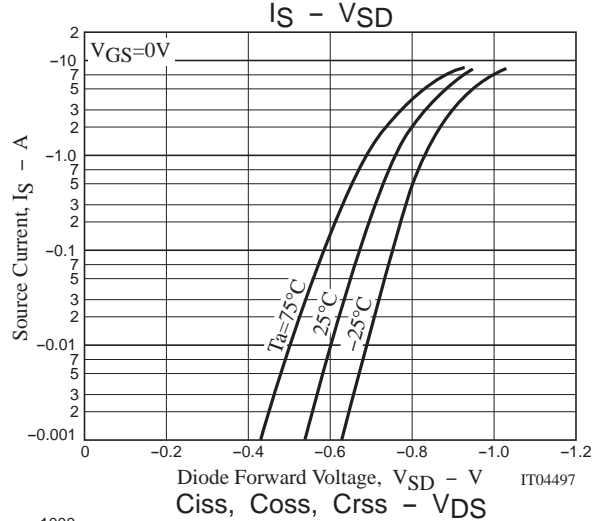
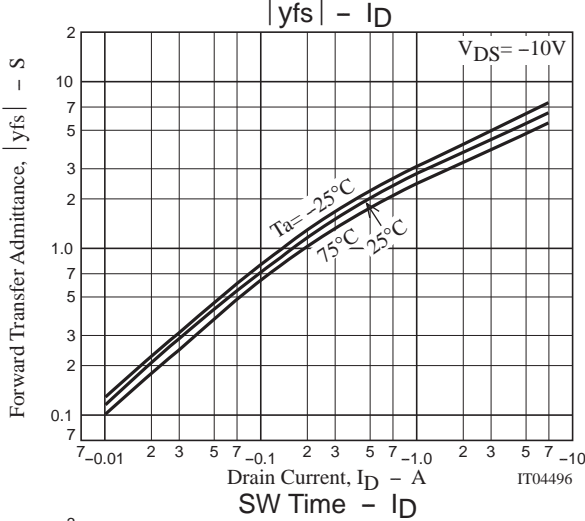
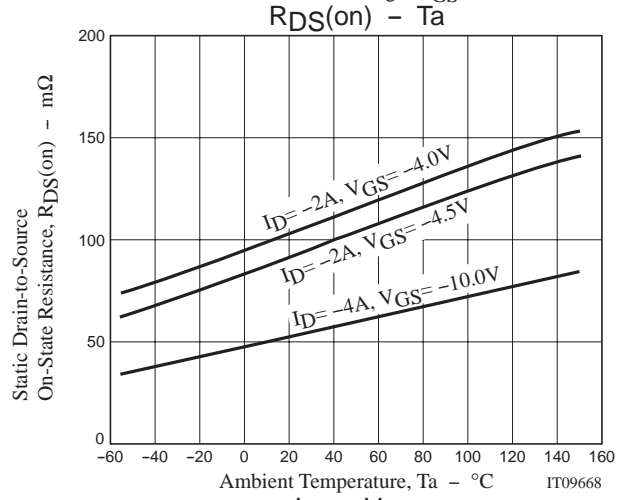
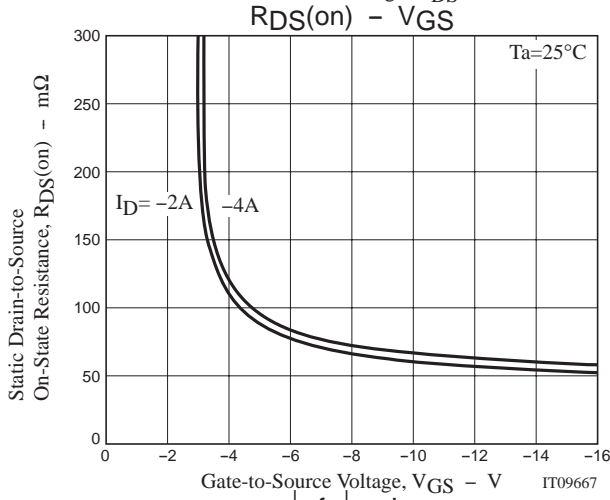
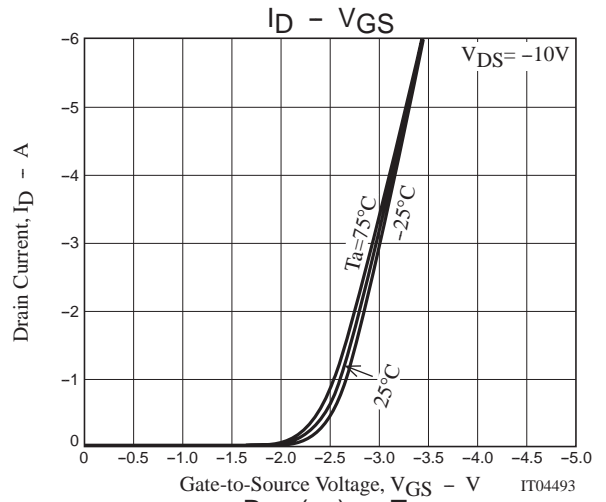
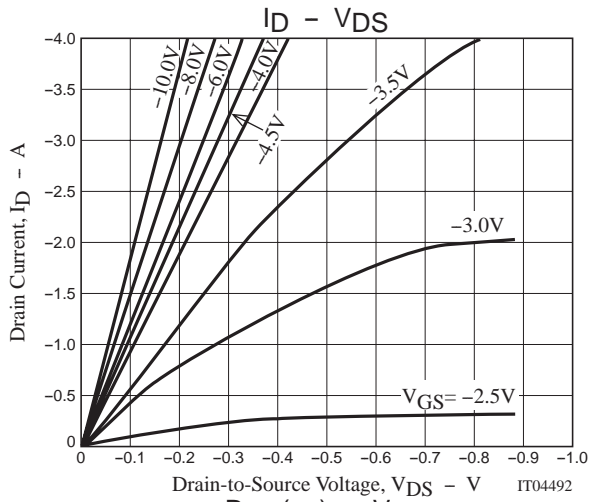
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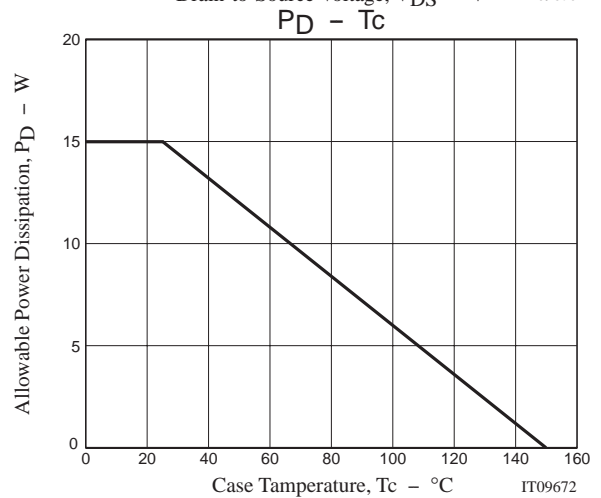
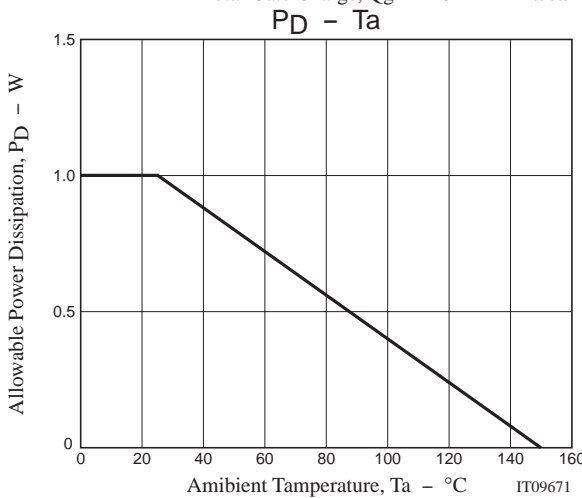
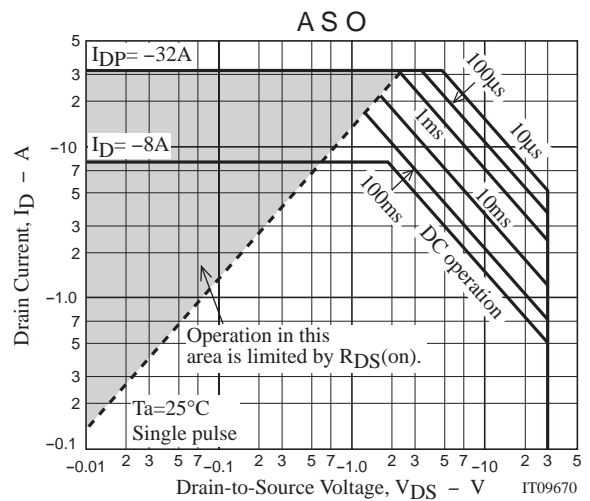
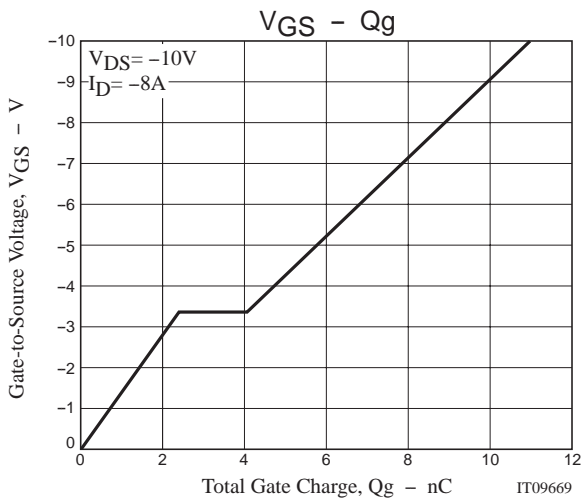
unit : mm  
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## Switching Time Test Circuit







Note on usage : Since the 2SJ646 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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