



# 2SJ630 — P-Channel Silicon MOSFET

## General-Purpose Switching Device Applications

### Features

- Low ON-resistance.
- Ultrahigh-speed switching.
- 1.8V drive.

### Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	$V_{DS}$		-12	V
Gate-to-Source Voltage	$V_{GS}$		$\pm 8$	V
Drain Current (DC)	$I_D$		-6	A
Drain Current (Pulse)	$I_{DP}$	$PW \leq 10\mu\text{s}$ , duty cycle $\leq 1\%$	-24	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	$V_{(BR)DSS}$	$I_D=-1\text{mA}$ , $V_{GS}=0\text{V}$	-12			V
Zero-Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=-12\text{V}$ , $V_{GS}=0\text{V}$			-10	$\mu\text{A}$
Gate-to-Source Leakage Current	$I_{GSS}$	$V_{GS}=\pm 6.4\text{V}$ , $V_{DS}=0\text{V}$			$\pm 10$	$\mu\text{A}$
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=-6\text{V}$ , $I_D=-1\text{mA}$	-0.3		-1.0	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=-6\text{V}$ , $I_D=-3\text{A}$	5.7	9.5		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D=-3\text{A}$ , $V_{GS}=-4.5\text{V}$		45	58	$\text{m}\Omega$
	$R_{DS(on)2}$	$I_D=-1.5\text{A}$ , $V_{GS}=-2.5\text{V}$		57	80	$\text{m}\Omega$
	$R_{DS(on)3}$	$I_D=-0.3\text{A}$ , $V_{GS}=-1.8\text{V}$		78	112	$\text{m}\Omega$
Input Capacitance	$C_{iss}$	$V_{DS}=-6\text{V}$ , $f=1\text{MHz}$		940		$\text{pF}$
Output Capacitance	$C_{oss}$	$V_{DS}=-6\text{V}$ , $f=1\text{MHz}$		230		$\text{pF}$
Reverse Transfer Capacitance	$C_{rss}$	$V_{DS}=-6\text{V}$ , $f=1\text{MHz}$		180		$\text{pF}$
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		12		ns
Rise Time	$t_r$	See specified Test Circuit.		143		ns
Turn-OFF Delay Time	$t_{d(off)}$	See specified Test Circuit.		71		ns
Fall Time	$t_f$	See specified Test Circuit.		89		ns

Marking : MD

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# 2SJ630

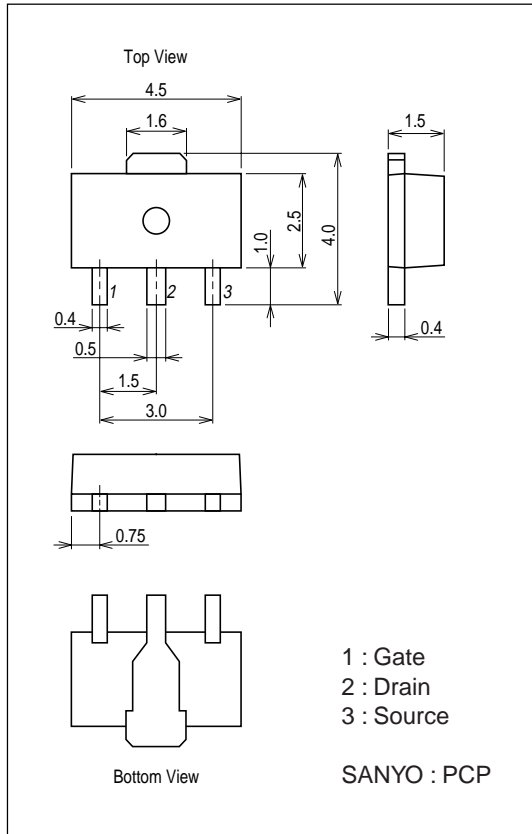
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Total Gate Charge	Qg	$V_{DS}=-6V, V_{GS}=-4.5V, I_D=-6A$		11		nC
Gate-to-Source Charge	Qgs	$V_{DS}=-6V, V_{GS}=-4.5V, I_D=-6A$		1.6		nC
Gate-to-Drain "Miller" Charge	Qgd	$V_{DS}=-6V, V_{GS}=-4.5V, I_D=-6A$		2.8		nC
Diode Forward Voltage	VSD	$I_S=-6A, V_{GS}=0V$		-0.95	-1.5	V

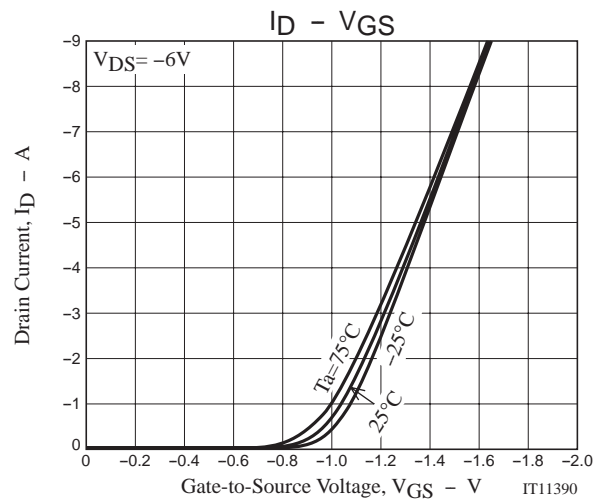
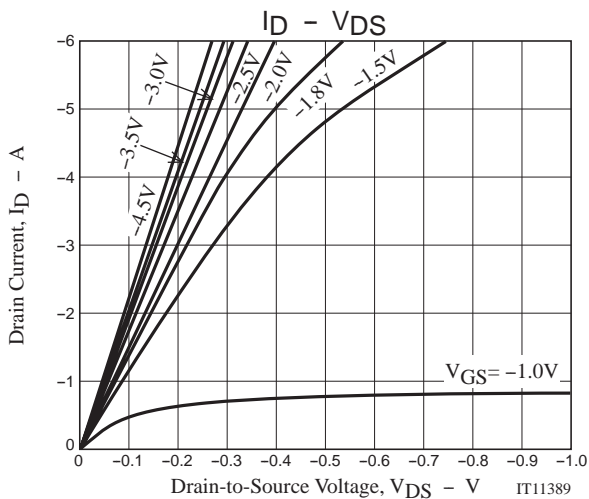
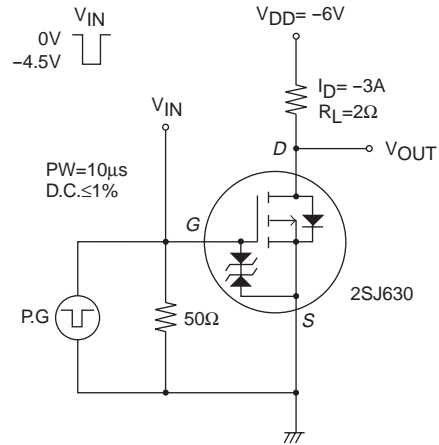
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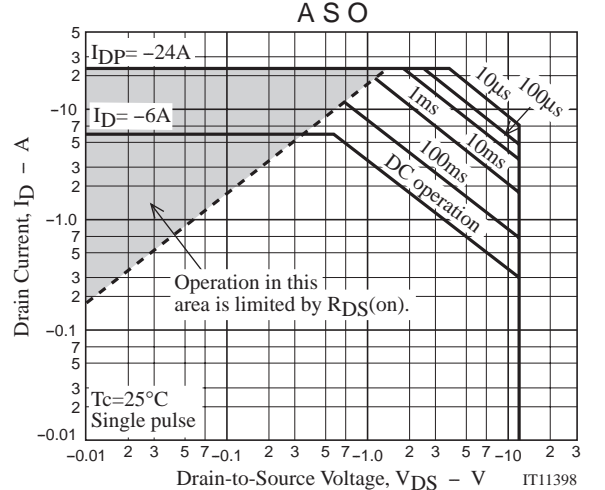
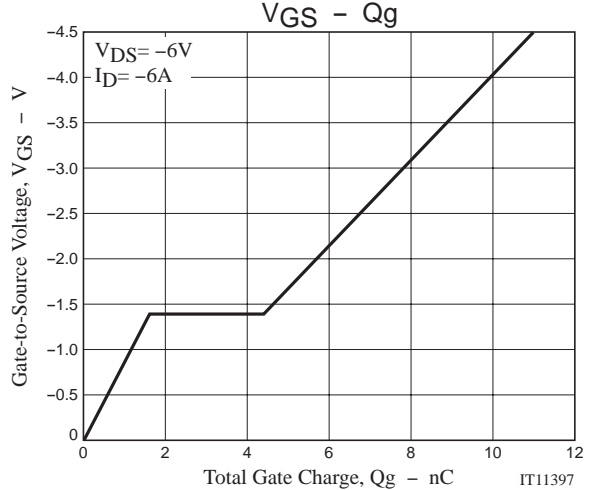
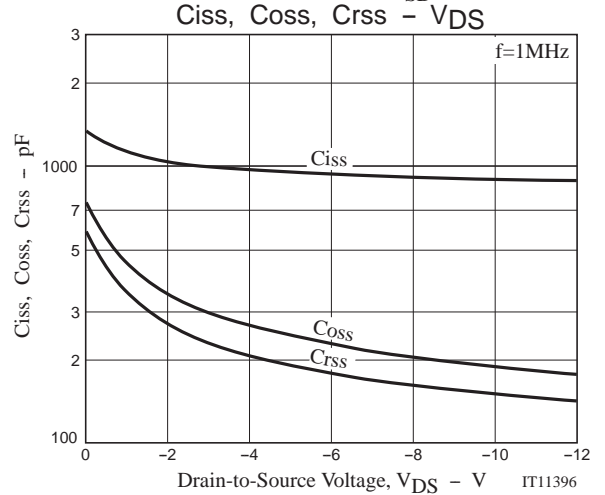
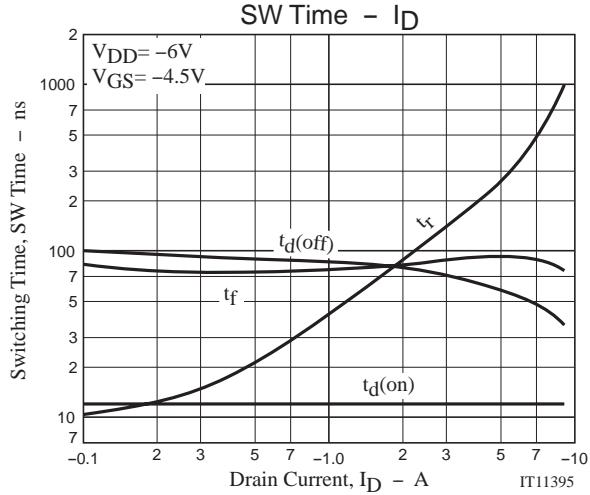
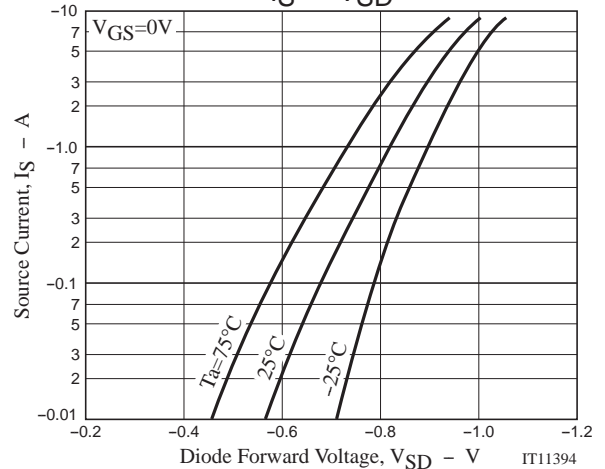
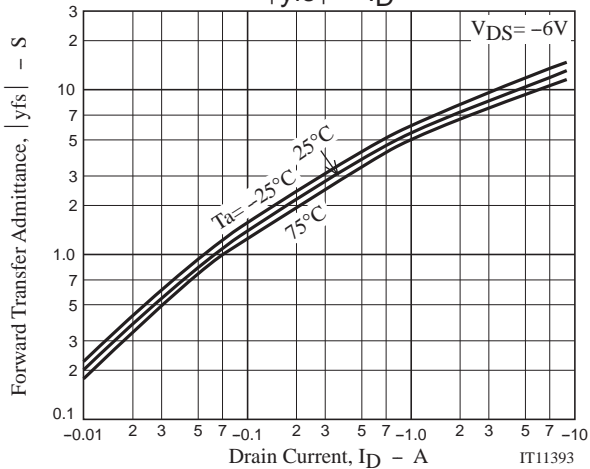
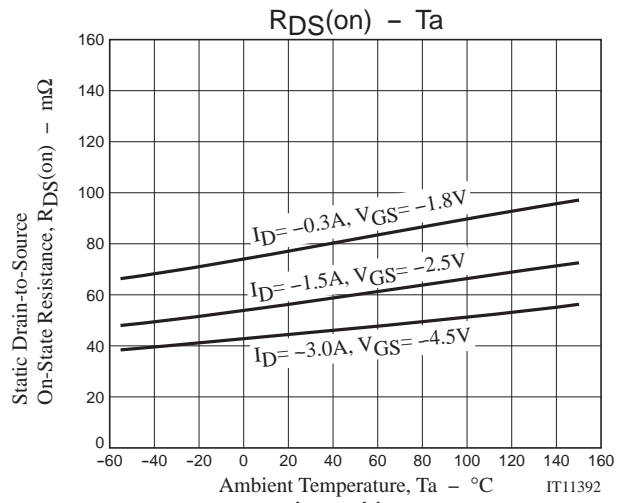
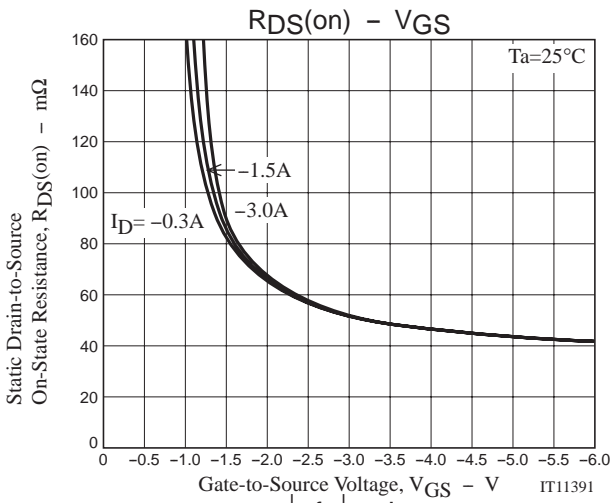
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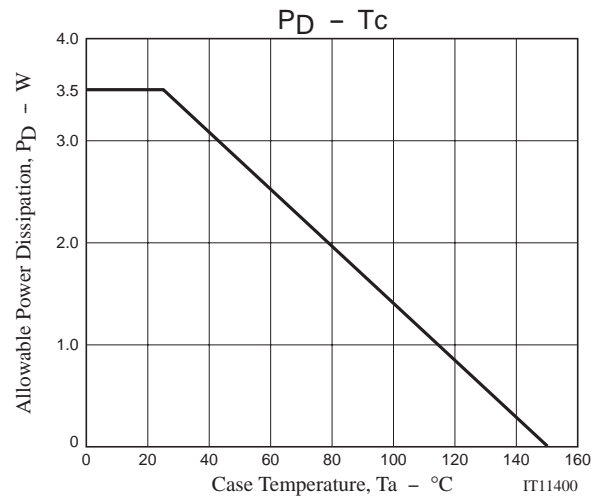
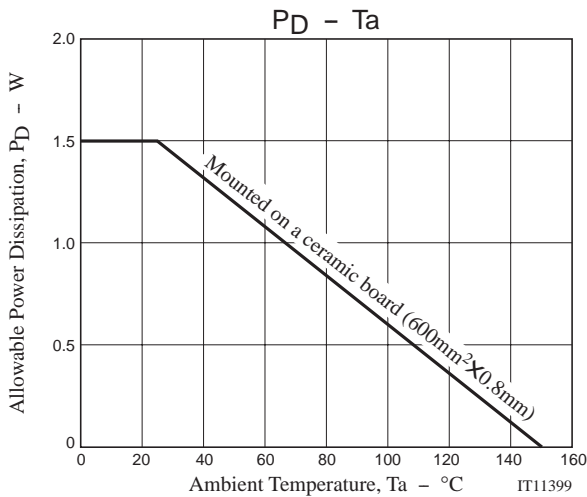
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## Switching Time Test Circuit







Note on usage : Since the 2SJ630 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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