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[2SJ651](#)

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SANYO Semiconductors

# DATA SHEET

## 2SJ651 — P-Channel Silicon MOSFET DC / DC Converter Applications

### Features

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

### Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V <sub>DSS</sub>		-60	V
Gate-to-Source Voltage	V <sub>GSS</sub>		±20	V
Drain Current (DC)	I <sub>D</sub>		-20	A
Drain Current (Pulse)	I <sub>DP</sub>	PW≤10μs, duty cycle≤1%	-80	A
Allowable Power Dissipation	P <sub>D</sub>		2.0	W
		T <sub>c</sub> =25°C	25	W
Channel Temperature	T <sub>ch</sub>		150	°C
Storage Temperature	T <sub>stg</sub>		-55 to +150	°C
Avalanche Energy (Single Pulse) *1	E <sub>AS</sub>		175	mJ
Avalanche Current *2	I <sub>AV</sub>		-20	A

Note : \*1 V<sub>DD</sub>=30V, L=500μH, I<sub>AV</sub>=-20A

\*2 L≤500μH, Single pulse

Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	I <sub>D</sub> =-1mA, V <sub>GS</sub> =0V	-60			V
Zero-Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =-60V, 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> =-10A	11	17		S
Static Drain-to-Source On-State Resistance	R <sub>DS(on)1</sub>	I <sub>D</sub> =-10A, V <sub>GS</sub> =-10V		45	60	mΩ
	R <sub>DS(on)2</sub>	I <sub>D</sub> =-10A, V <sub>GS</sub> =-4V		65	92	mΩ

Marking : J651

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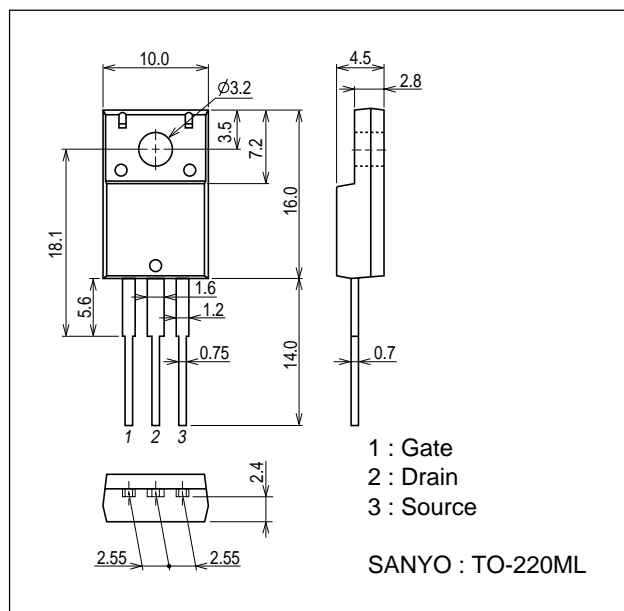
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	$C_{iss}$	$V_{DS}=-20V, f=1MHz$		2200		pF
Output Capacitance	$C_{oss}$	$V_{DS}=-20V, f=1MHz$		220		pF
Reverse Transfer Capacitance	$C_{rss}$	$V_{DS}=-20V, f=1MHz$		165		pF
Turn-ON Delay Time	$t_d(on)$	See specified Test Circuit.		18		ns
Rise Time	$t_r$	See specified Test Circuit.		115		ns
Turn-OFF Delay Time	$t_d(off)$	See specified Test Circuit.		190		ns
Fall Time	$t_f$	See specified Test Circuit.		120		ns
Total Gate Charge	$Q_g$	$V_{DS}=-30V, V_{GS}=-10V, I_D=-20A$		45		nC
Gate-to-Source Charge	$Q_{gs}$	$V_{DS}=-30V, V_{GS}=-10V, I_D=-20A$		7.4		nC
Gate-to-Drain"Miller"Charge	$Q_{gd}$	$V_{DS}=-30V, V_{GS}=-10V, I_D=-20A$		9		nC
Diode Forward Voltage	$V_{SD}$	$I_S=-20A, V_{GS}=0V$		-0.95	-1.2	V

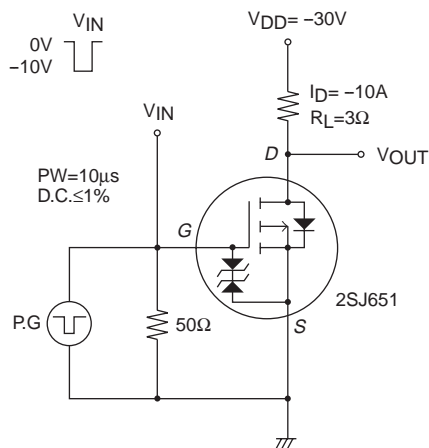
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unit : mm

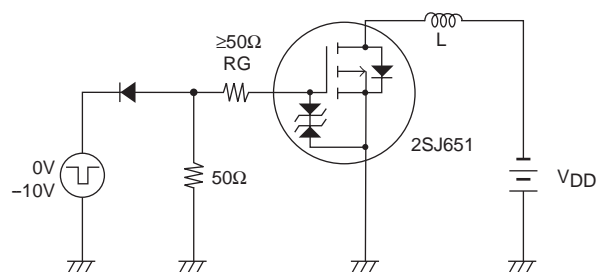
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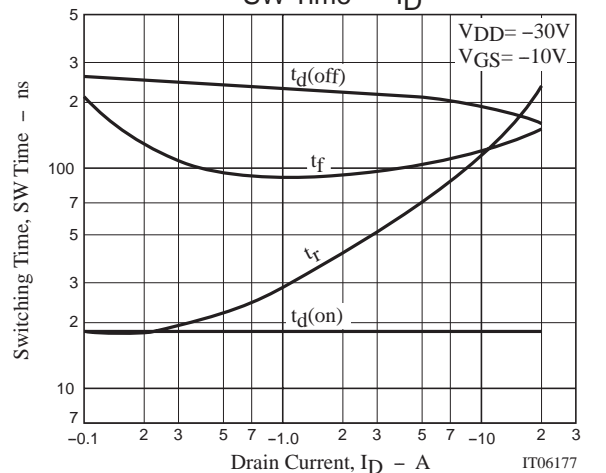
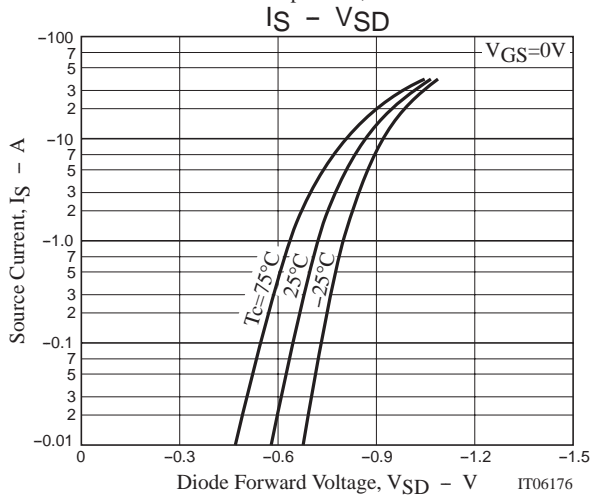
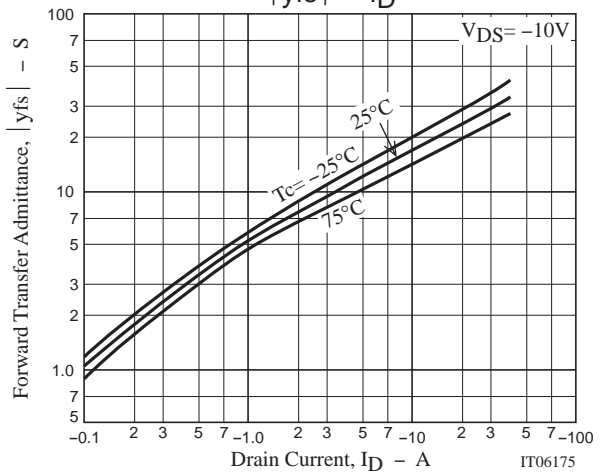
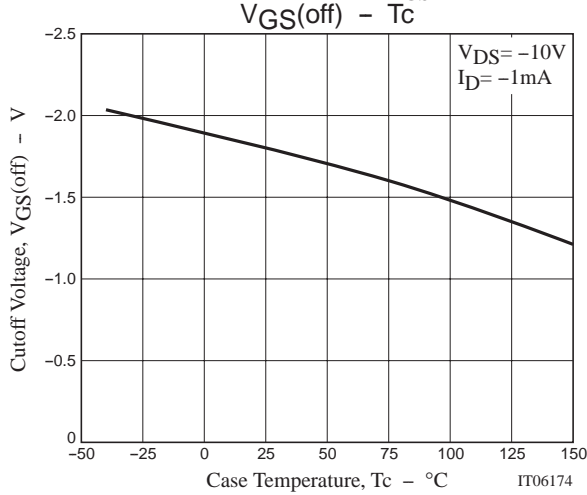
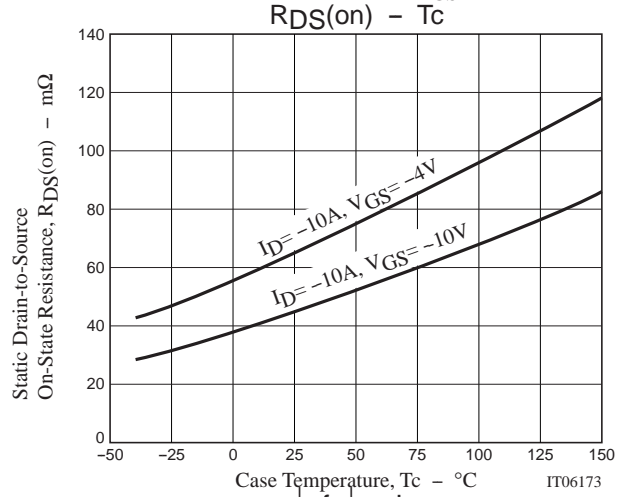
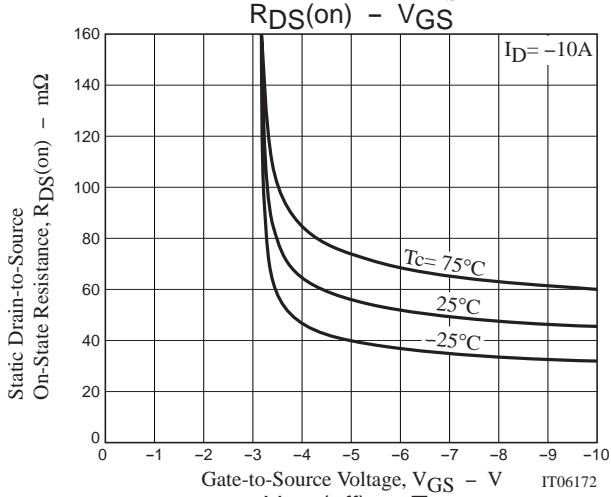
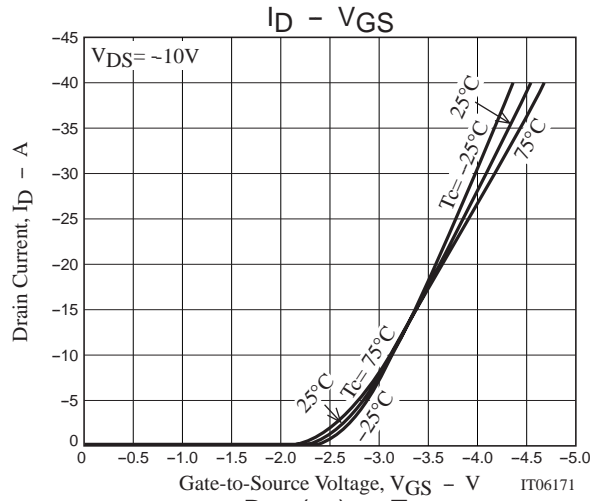
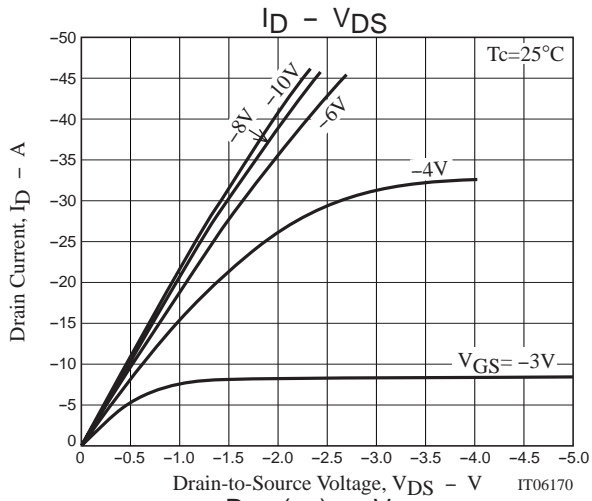
### Switching Time Test Circuit



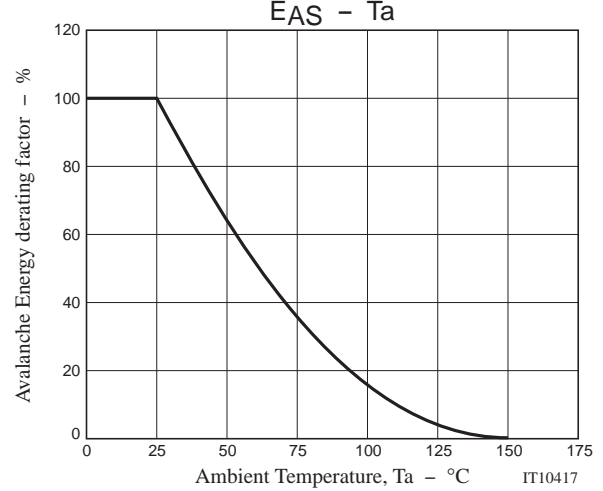
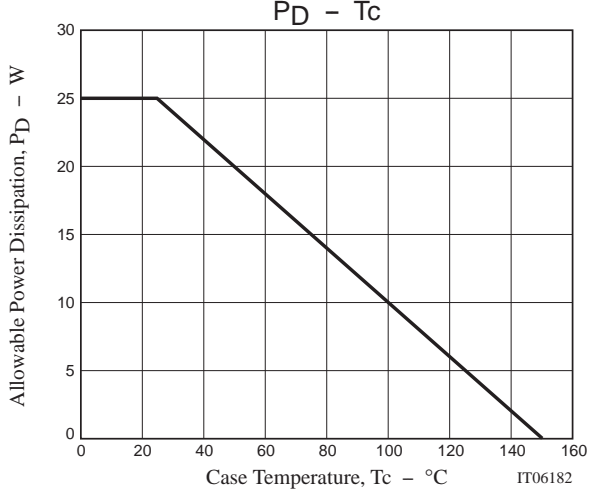
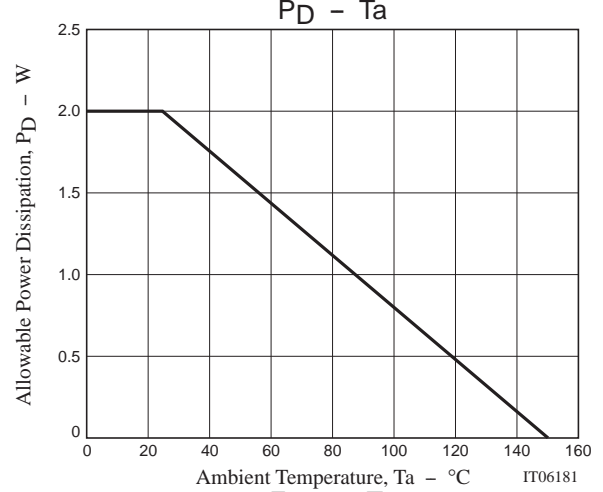
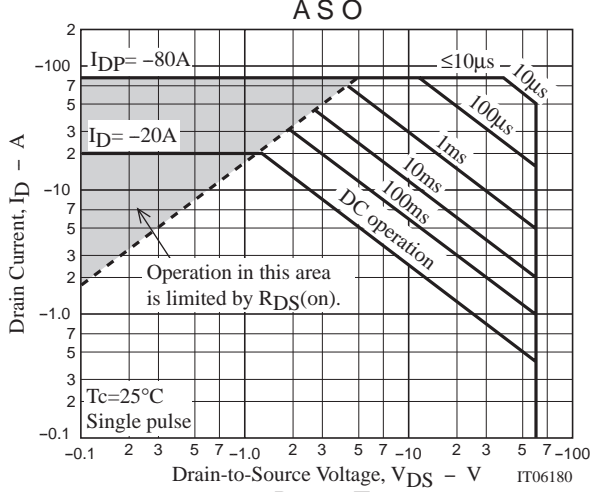
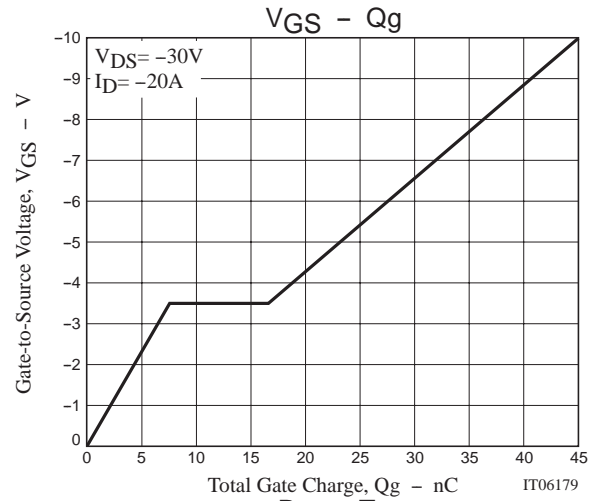
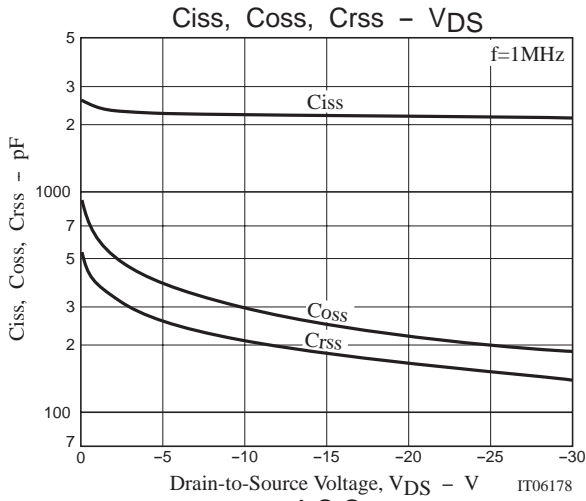
### Avalanche Resistance Test Circuit



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