

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 _{DSS}		-60	V
Gate-to-Source Voltage	V _{GSS}		±20	V
Drain Current (DC)	I _D		-20	A
Drain Current (Pulse)	I _{DP}	PW≤10μs, duty cycle≤1%	-80	A
Allowable Power Dissipation	P _D		2.0	W
		T _c =25°C	25	W
Channel Temperature	T _{ch}		150	°C
Storage Temperature	T _{stg}		-55 to +150	°C
Avalanche Energy (Single Pulse) *1	E _{AS}		175	mJ
Avalanche Current *2	I _{AV}		-20	A

Note : *1 V_{DD}=30V, L=500μH, I_{AV}=-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 _{(BR)DSS}	I _D =-1mA, V _{GS} =0V	-60			V
Zero-Gate Voltage Drain Current	I _{DSS}	V _{DS} =-60V, 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	y _{fs}	V _{DS} =-10V, I _D =-10A	11	17		S
Static Drain-to-Source On-State Resistance	R _{DS(on)1}	I _D =-10A, V _{GS} =-10V		45	60	mΩ
	R _{DS(on)2}	I _D =-10A, V _{GS} =-4V		65	92	mΩ

Marking : J651

Continued on next page.

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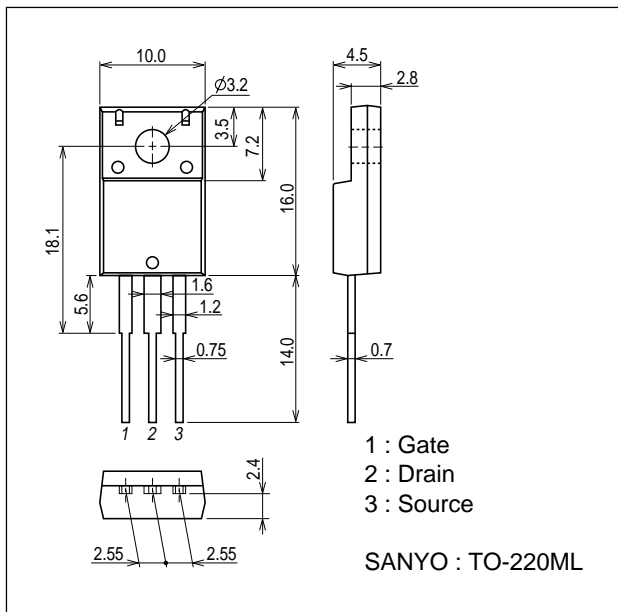
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss	V _{DS} =-20V, f=1MHz		2200		pF
Output Capacitance	Coss	V _{DS} =-20V, f=1MHz		220		pF
Reverse Transfer Capacitance	Crss	V _{DS} =-20V, f=1MHz		165		pF
Turn-ON Delay 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

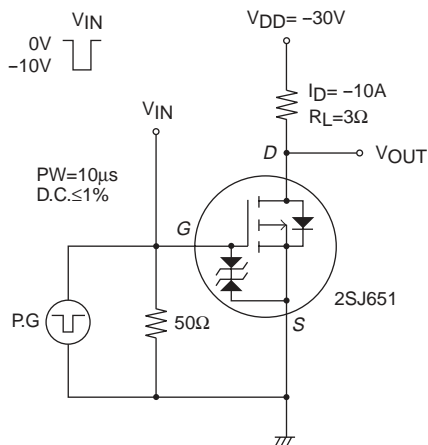
Package Dimensions

unit : mm

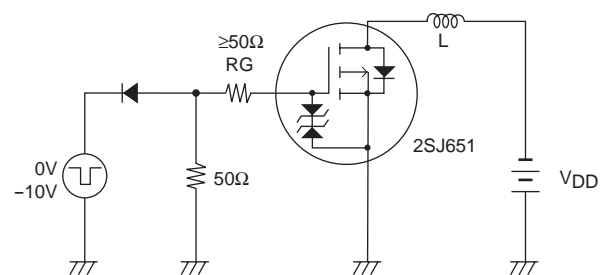
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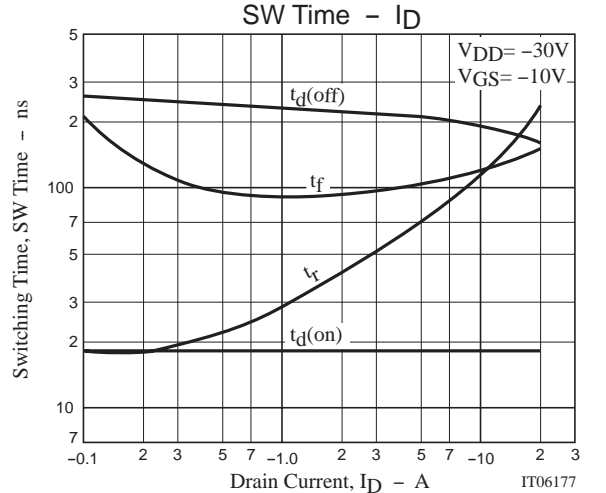
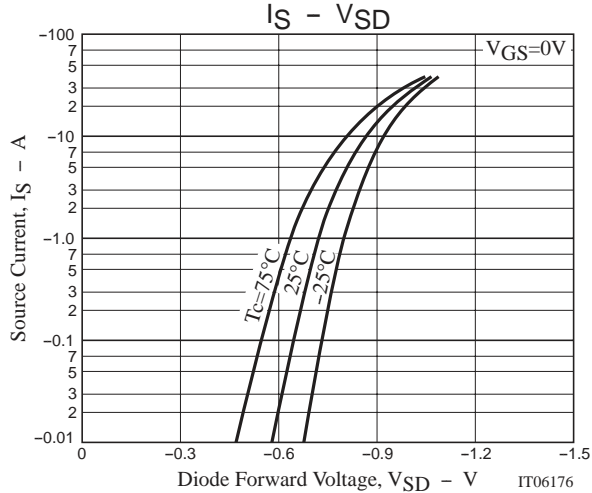
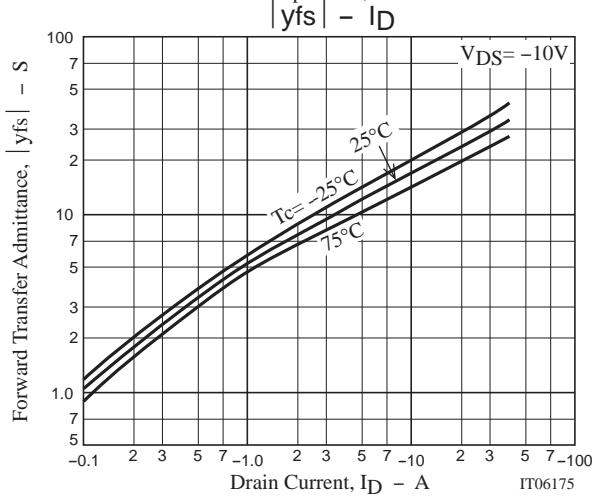
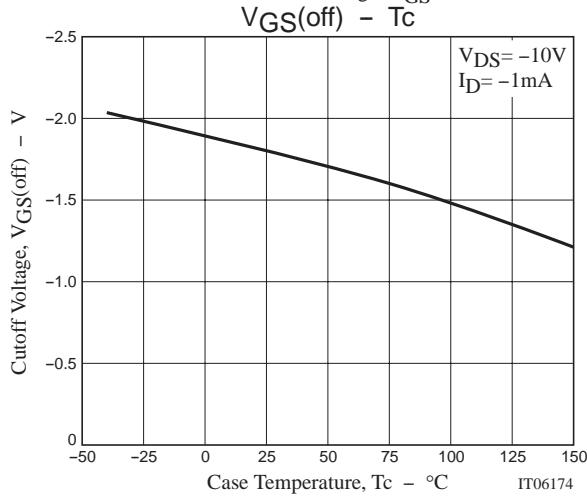
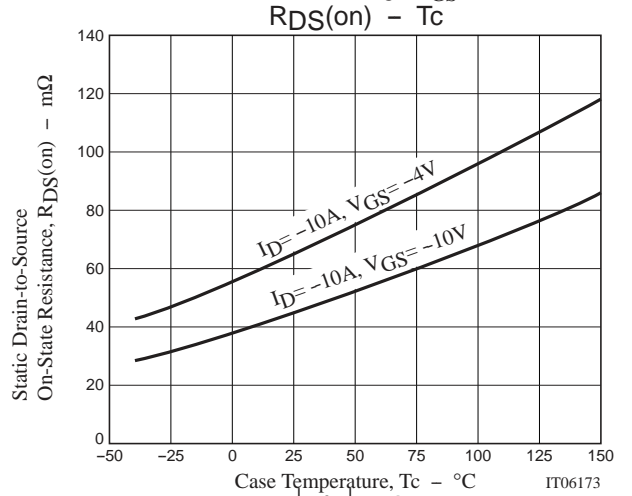
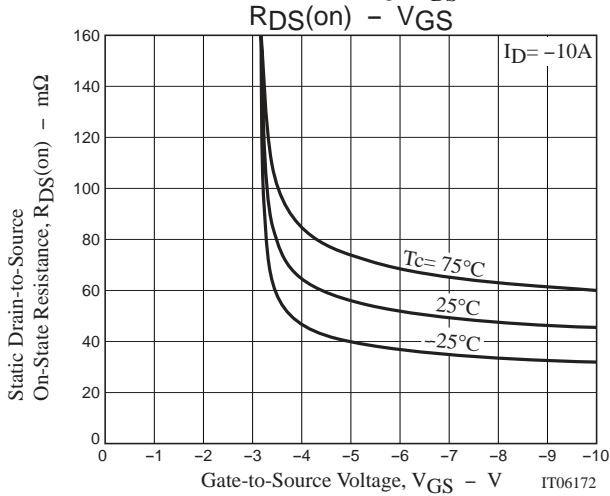
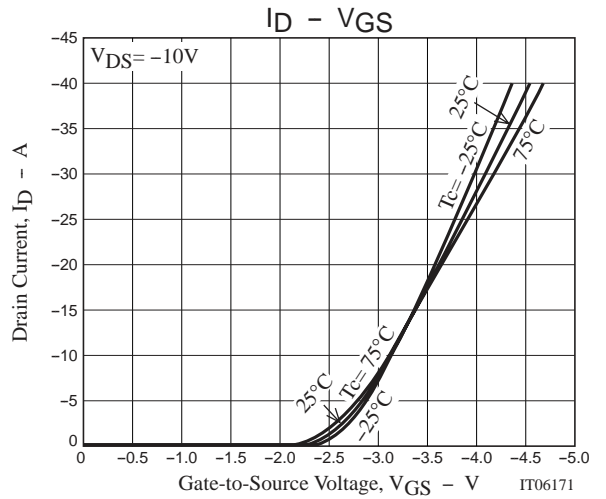
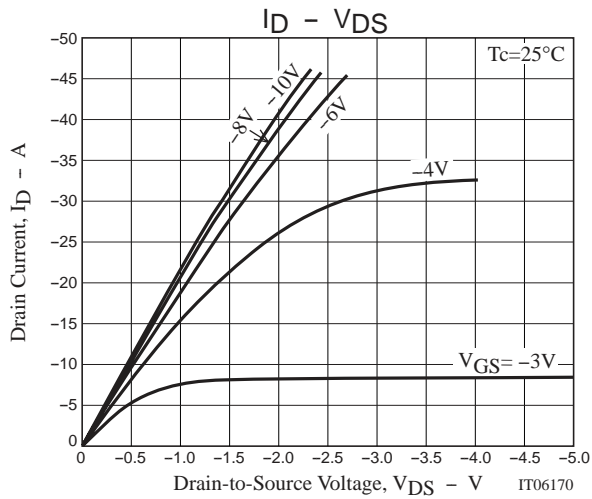


Switching Time Test Circuit

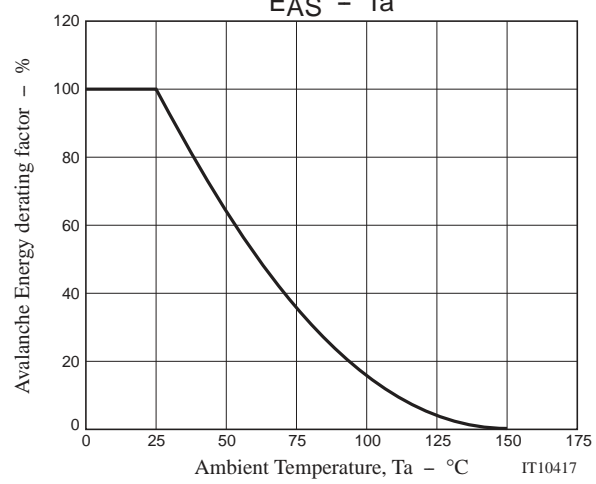
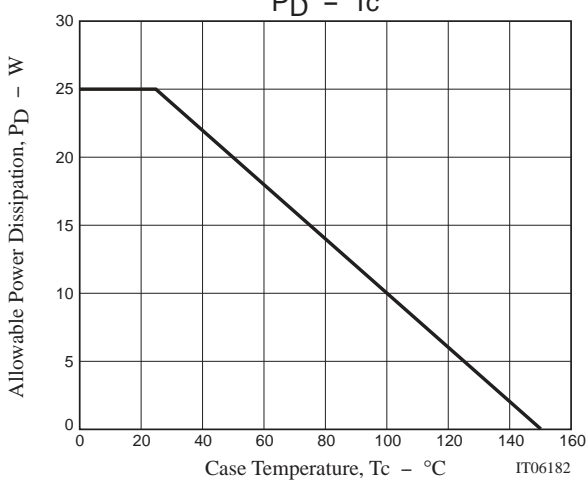
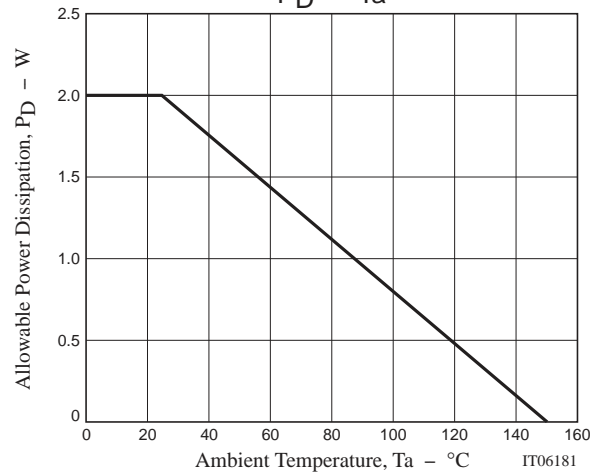
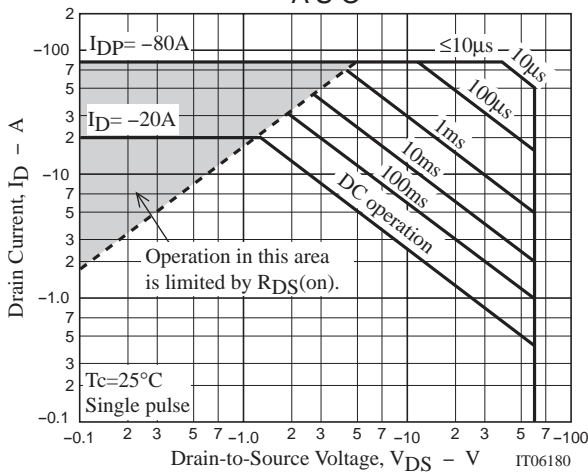
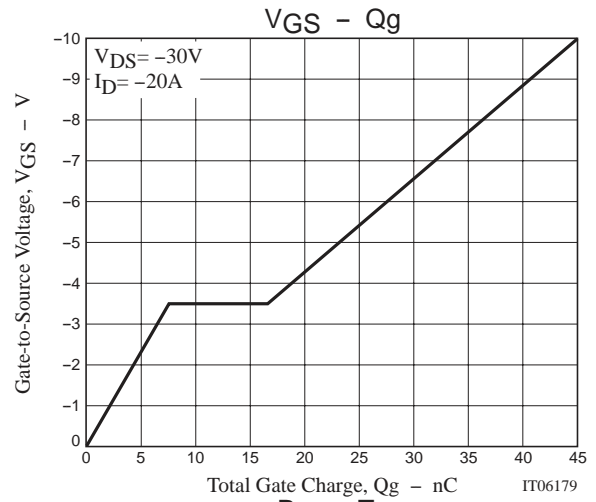
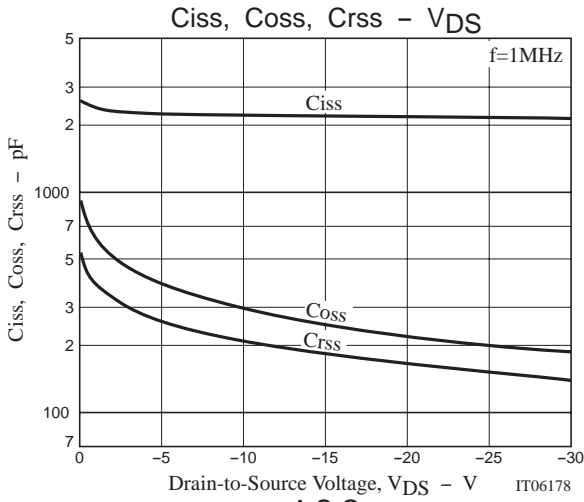


Avalanche Resistance Test Circuit





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