



2SJ659 — P-Channel Silicon MOSFET

General-Purpose Switching Device Applications

Features

- Low ON-resistance.
- Ultrahigh-speed switching.
- 4V drive.
- Motor drive, DC / DC converter.
- 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		-14	A
Drain Current (Pulse)	I _{DP}	PW≤10μs, duty cycle≤1%	-56	A
Allowable Power Dissipation	P _D		1.65	W
		T _c =25°C	40	W
Channel Temperature	T _{ch}		150	°C
Storage Temperature	T _{stg}		-55 to +150	°C
Avalanche Energy (Single Pulse) *1	E _{AS}		85	mJ
Avalanche Current *2	I _{AV}		-14	A

Note : *1 V_{DD}=30V, L=500μH, I_{AV}=-14A

*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 =-7A	7	12		S
Static Drain-to-Source On-State Resistance	R _{DS(on)1}	I _D =-7A, V _{GS} =-10V		102	133	mΩ
	R _{DS(on)2}	I _D =-7A, V _{GS} =-4V		147	206	mΩ

Marking : J659

Continued on next page.

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2SJ659

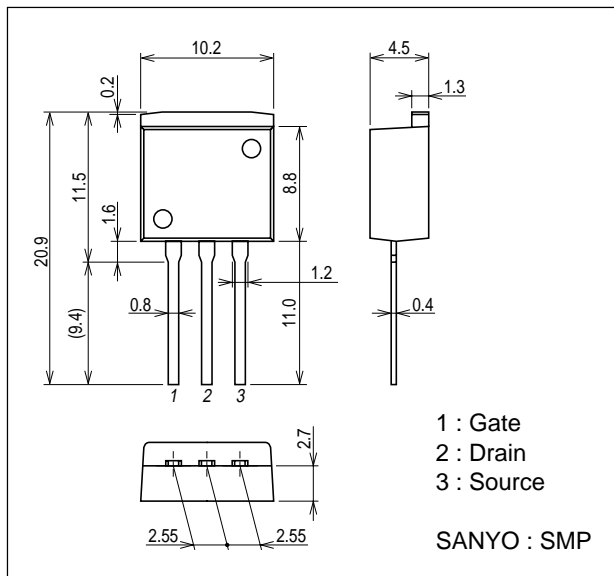
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss	V _{DS} =-20V, f=1MHz		1020		pF
Output Capacitance	Coss	V _{DS} =-20V, f=1MHz		110		pF
Reverse Transfer Capacitance	Crss	V _{DS} =-20V, f=1MHz		76		pF
Turn-ON Delay Time	t _{d(on)}	See specified Test Circuit.		10		ns
Rise Time	t _r	See specified Test Circuit.		180		ns
Turn-OFF Delay Time	t _{d(off)}	See specified Test Circuit.		80		ns
Fall Time	t _f	See specified Test Circuit.		100		ns
Total Gate Charge	Q _g	V _{DS} =-30V, V _{GS} =-10V, I _D =-14A		21		nC
Gate-to-Source Charge	Q _{gs}	V _{DS} =-30V, V _{GS} =-10V, I _D =-14A		3.8		nC
Gate-to-Drain "Miller" Charge	Q _{gd}	V _{DS} =-30V, V _{GS} =-10V, I _D =-14A		4.5		nC
Diode Forward Voltage	V _{SD}	I _S =-14A, V _{GS} =0V	-1.0		-1.2	V

Package Dimensions

unit : mm

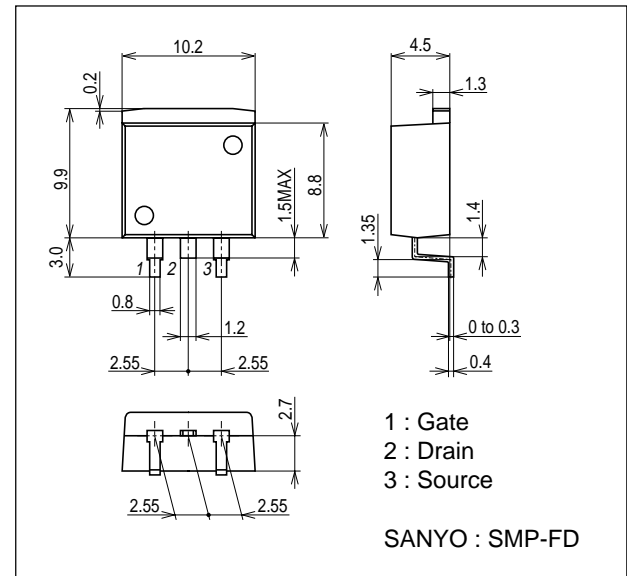
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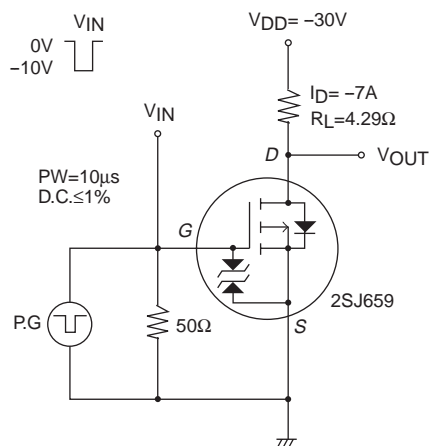
Package Dimensions

unit : mm

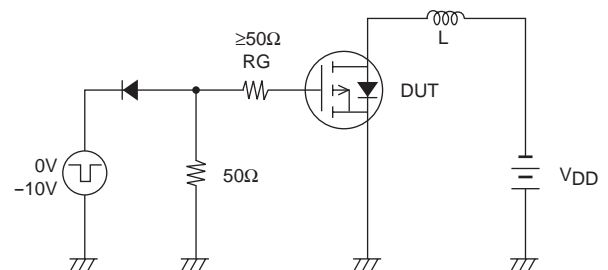
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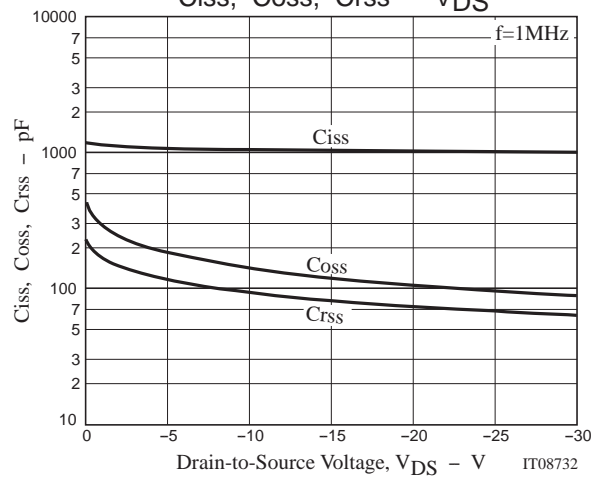
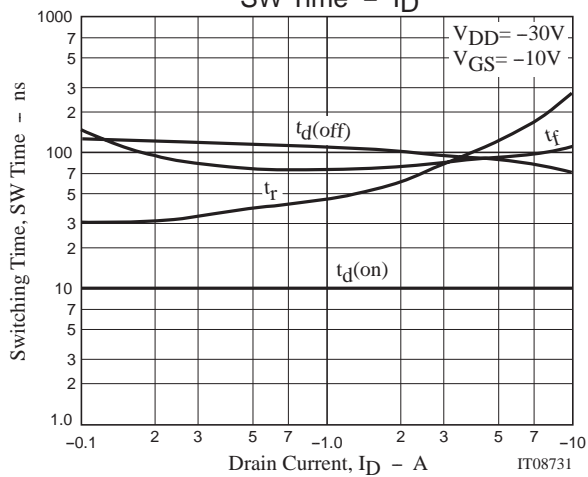
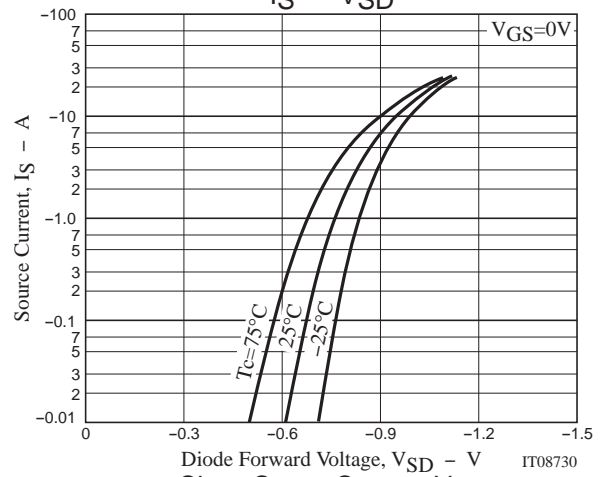
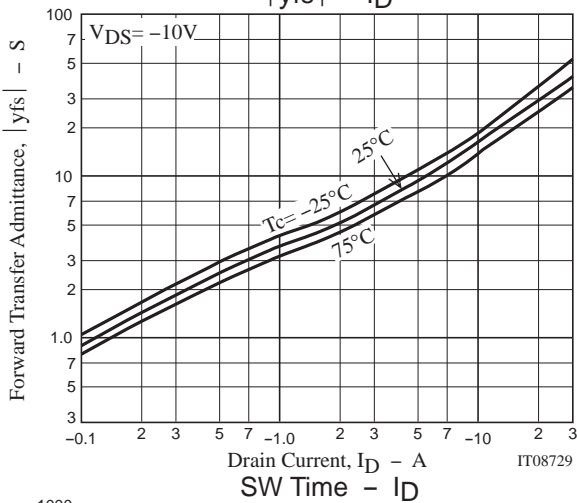
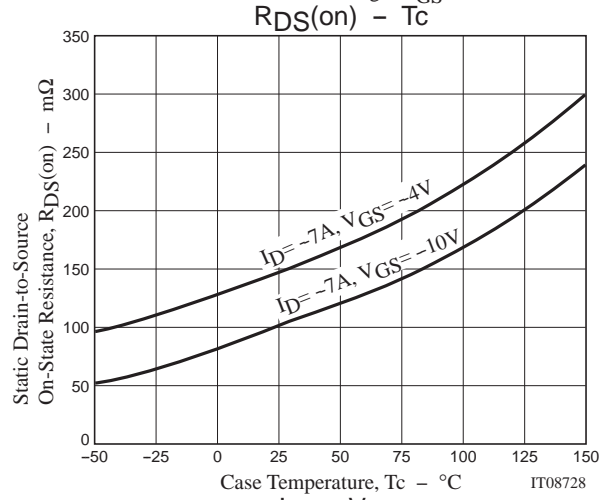
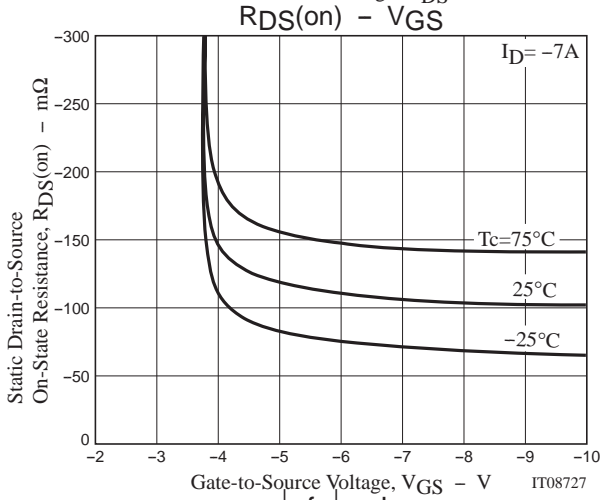
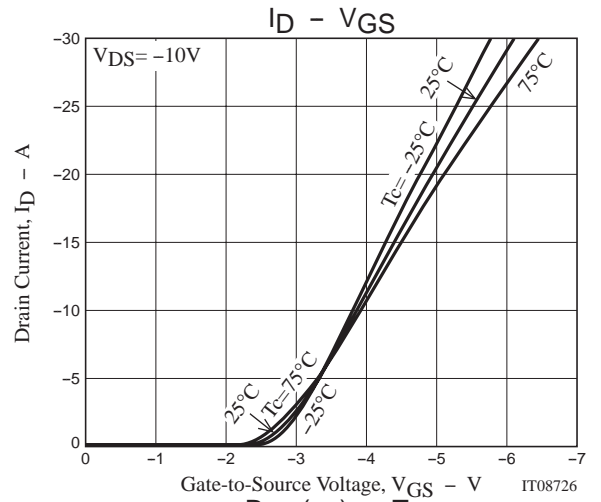
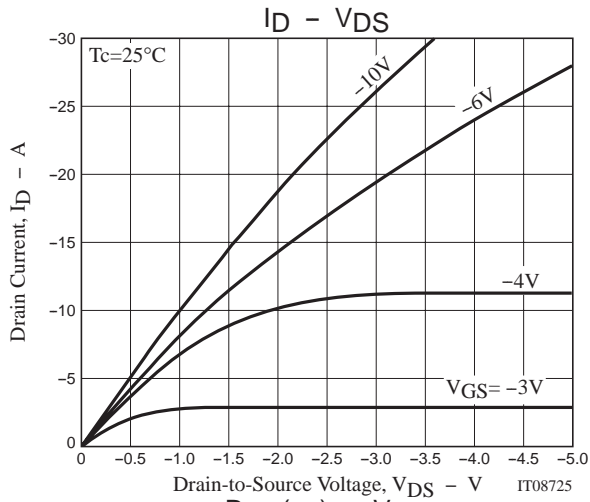


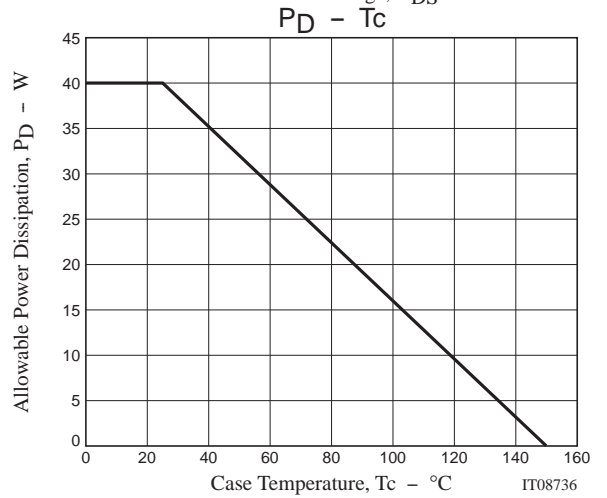
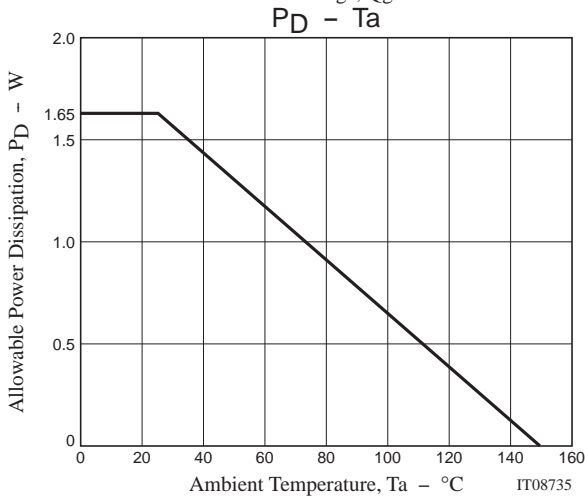
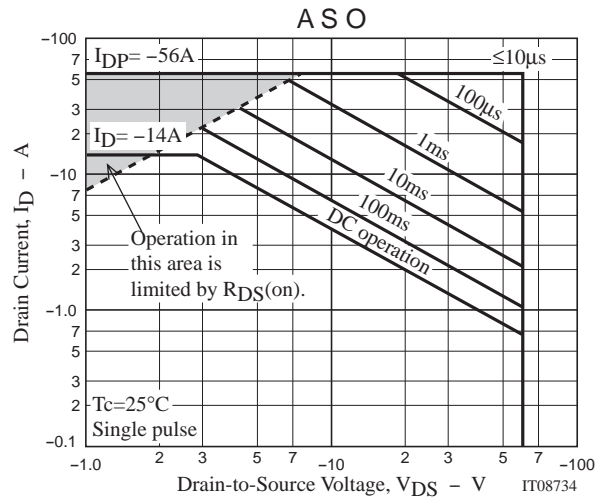
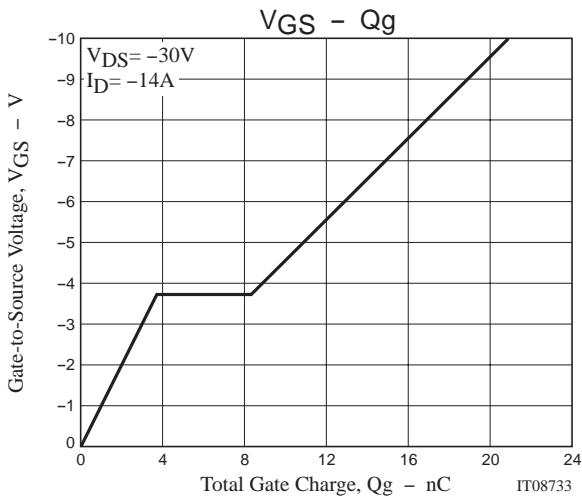
Switching Time Test Circuit



Avalanche Resistance Test Circuit







Note on usage : Since the 2SJ659 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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