



SANYO Semiconductors

DATA SHEET

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
		Tc=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

Marking : J659

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2SJ659

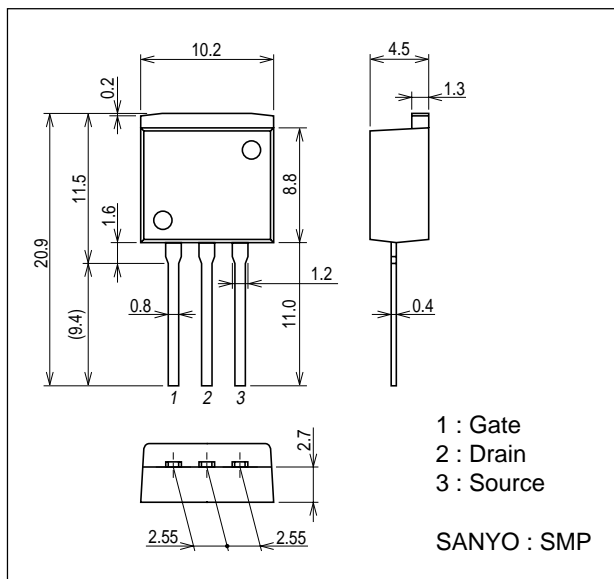
Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = -1\text{mA}$, $V_{GS} = 0\text{V}$	-60			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -60\text{V}$, $V_{GS} = 0\text{V}$			-1	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS} = \pm 16\text{V}$, $V_{DS} = 0\text{V}$			± 10	μA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS} = -10\text{V}$, $I_D = -1\text{mA}$	-1.2		-2.6	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS} = -10\text{V}$, $I_D = -7\text{A}$	7	12		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)1}$	$I_D = -7\text{A}$, $V_{GS} = -10\text{V}$		102	133	$\text{m}\Omega$
	$R_{DS(on)2}$	$I_D = -7\text{A}$, $V_{GS} = -4\text{V}$		147	206	$\text{m}\Omega$
Input Capacitance	C_{iss}	$V_{DS} = -20\text{V}$, $f = 1\text{MHz}$		1020		pF
Output Capacitance	C_{oss}	$V_{DS} = -20\text{V}$, $f = 1\text{MHz}$		110		pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS} = -20\text{V}$, $f = 1\text{MHz}$		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	$V_{DS} = -30\text{V}$, $V_{GS} = -10\text{V}$, $I_D = -14\text{A}$		21		nC
Gate-to-Source Charge	Q_{gs}	$V_{DS} = -30\text{V}$, $V_{GS} = -10\text{V}$, $I_D = -14\text{A}$		3.8		nC
Gate-to-Drain "Miller" Charge	Q_{gd}	$V_{DS} = -30\text{V}$, $V_{GS} = -10\text{V}$, $I_D = -14\text{A}$		4.5		nC
Diode Forward Voltage	V_{SD}	$I_S = -14\text{A}$, $V_{GS} = 0\text{V}$		-1.0	-1.2	V

Package Dimensions

unit : mm (typ)

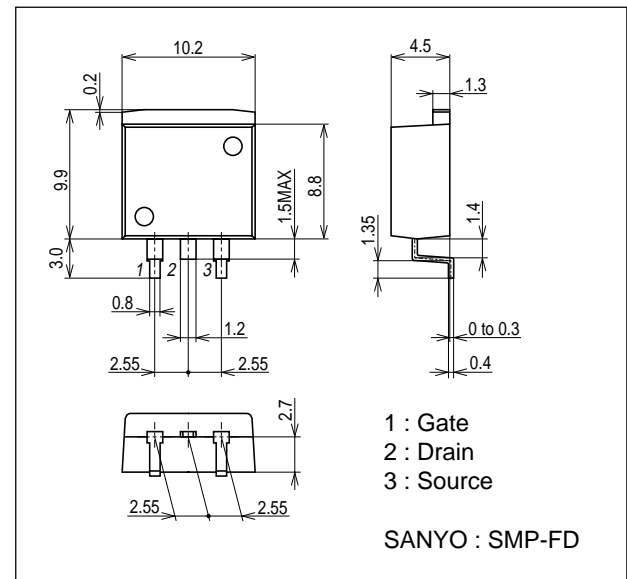
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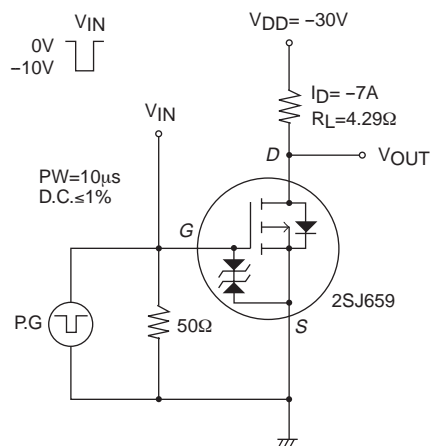
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unit : mm (typ)

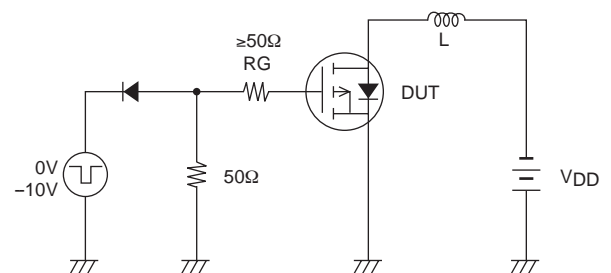
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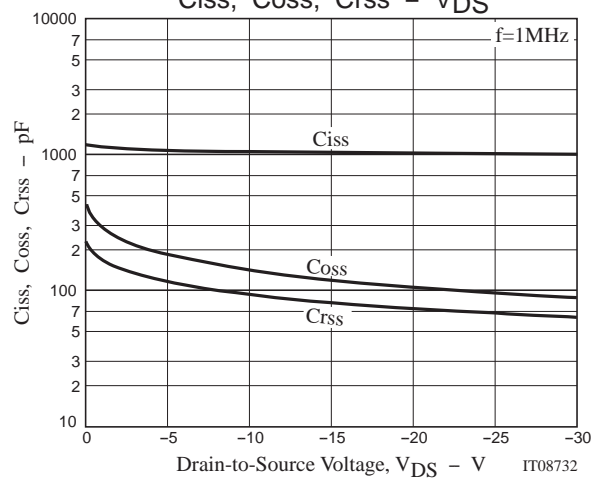
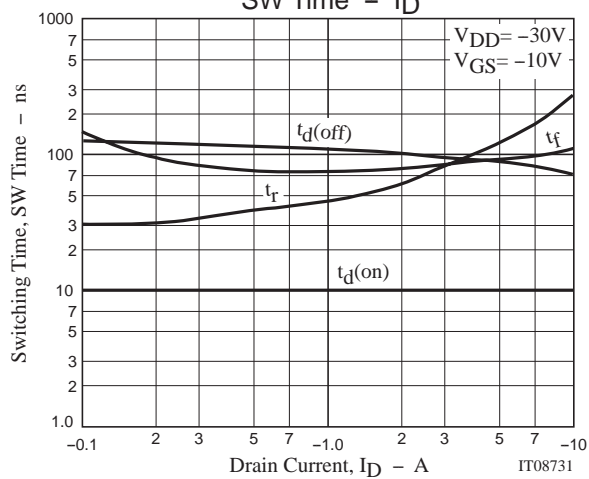
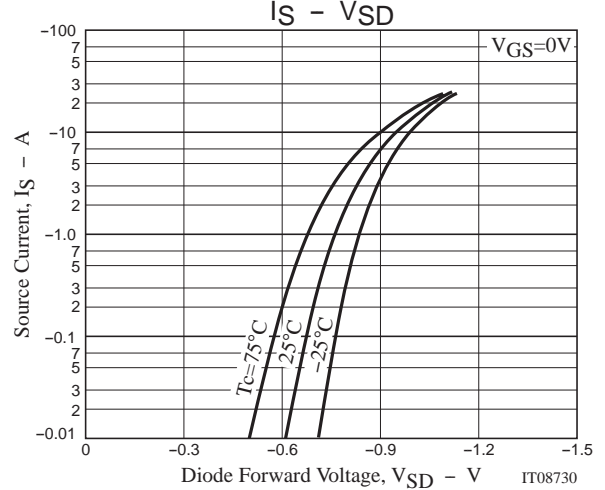
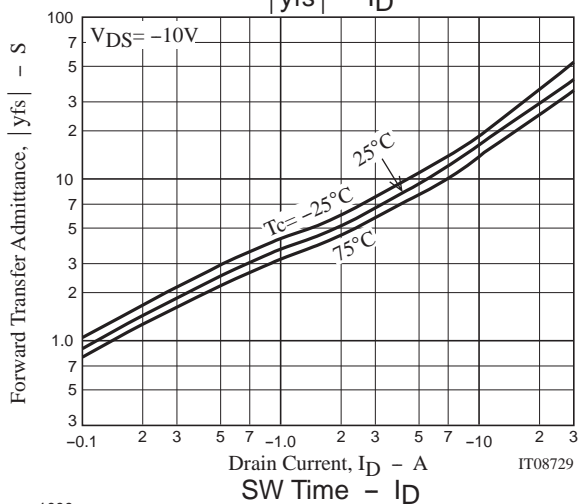
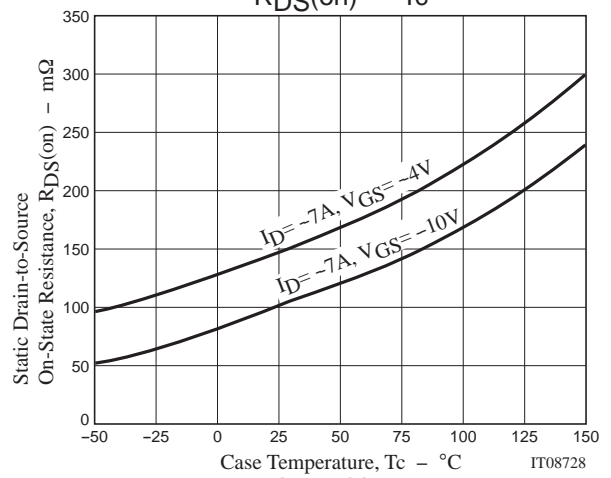
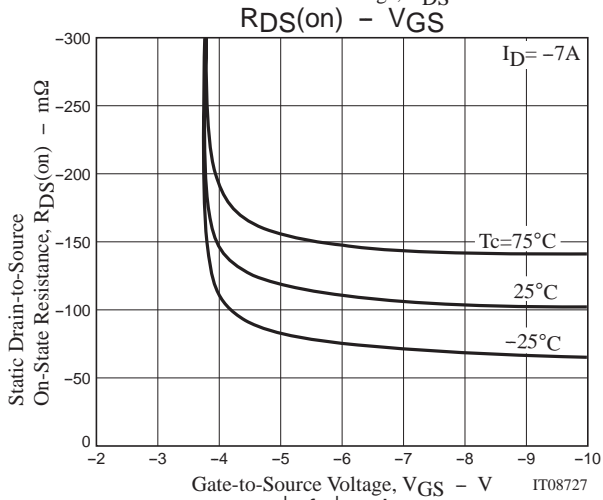
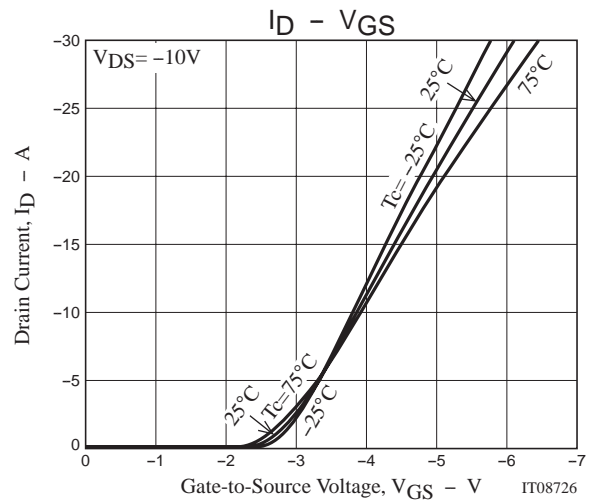
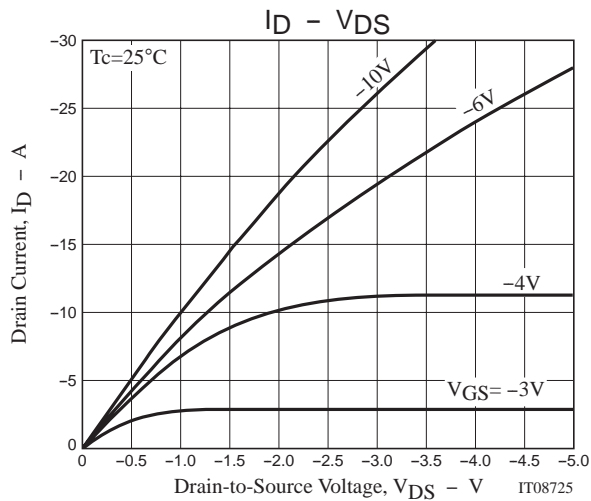


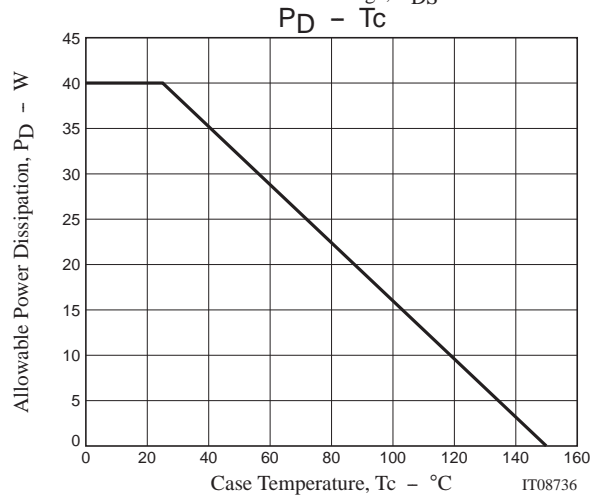
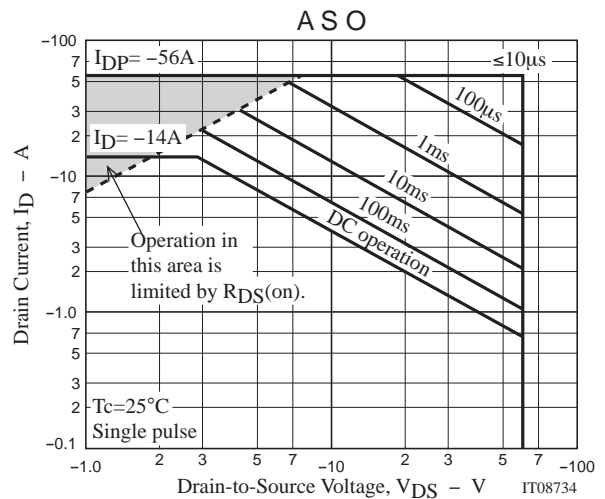
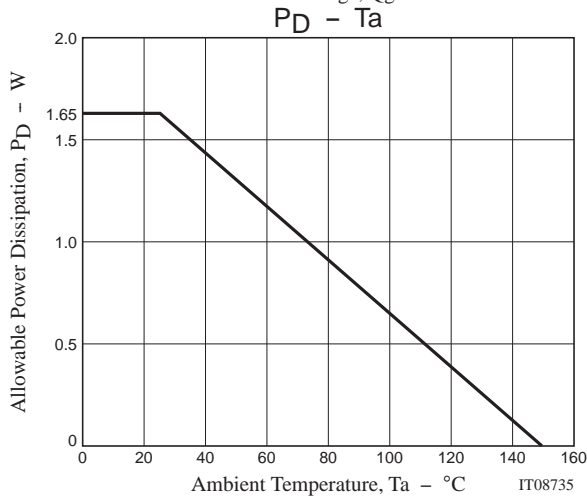
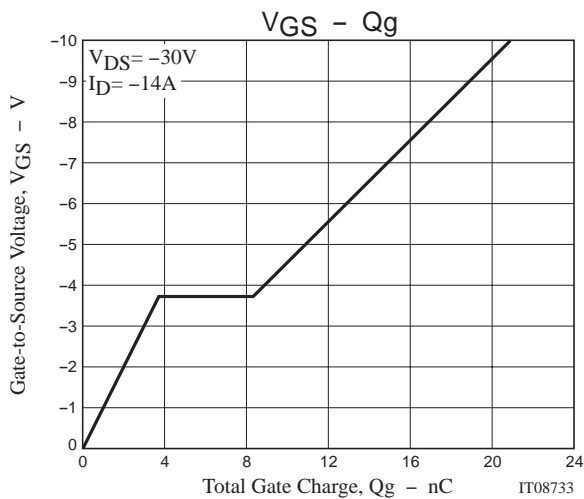
Switching Time Test Circuit



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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