



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 $T_a=25^\circ\text{C}$

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}	$PW \leq 10\mu\text{s}$, duty cycle $\leq 1\%$	-56	A
Allowable Power Dissipation	P_D		1.65	W
		$T_c=25^\circ\text{C}$	40	W
Channel Temperature	T_{ch}		150	$^\circ\text{C}$
Storage Temperature	T_{stg}		-55 to +150	$^\circ\text{C}$
Avalanche Energy (Single Pulse) *1	E_{AS}		85	mJ
Avalanche Current *2	I_{AV}		-14	A

Note : *1 $V_{DD}=30\text{V}$, $L=500\mu\text{H}$, $I_{AV}=-14\text{A}$

*2 $L \leq 500\mu\text{H}$, Single pulse

Marking : J659

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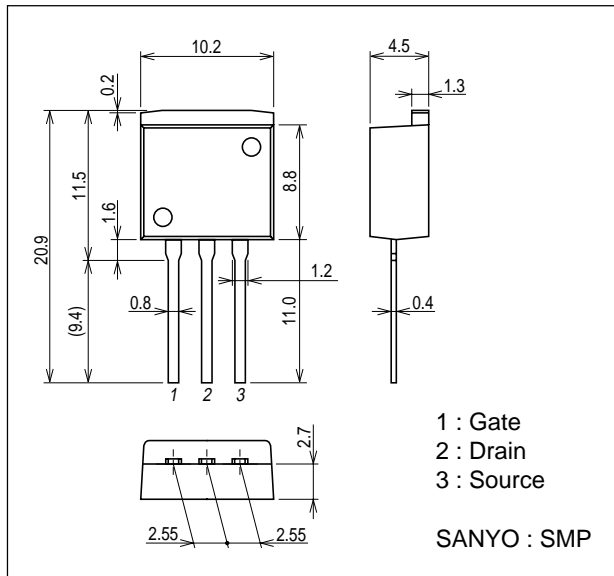
2SJ659

Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	V(BR)DSS	ID=-1mA, VGS=0V	-60			V
Zero-Gate Voltage Drain Current	IDSS	VDS=-60V, VGS=0V			-1	μA
Gate-to-Source Leakage Current	IGSS	VGS=±16V, VDS=0V			±10	μA
Cutoff Voltage	VGS(off)	VDS=-10V, ID=-1mA	-1.2		-2.6	V
Forward Transfer Admittance	yfs	VDS=-10V, ID=-7A	7	12		S
Static Drain-to-Source On-State Resistance	RDS(on)1	ID=-7A, VGS=-10V		102	133	mΩ
	RDS(on)2	ID=-7A, VGS=-4V		147	206	mΩ
Input Capacitance	Ciss	VDS=-20V, f=1MHz		1020		pF
Output Capacitance	Coss	VDS=-20V, f=1MHz		110		pF
Reverse Transfer Capacitance	Crss	VDS=-20V, f=1MHz		76		pF
Turn-ON Delay Time	td(on)	See specified Test Circuit.		10		ns
Rise Time	tr	See specified Test Circuit.		180		ns
Turn-OFF Delay Time	td(off)	See specified Test Circuit.		80		ns
Fall Time	tf	See specified Test Circuit.		100		ns
Total Gate Charge	Qg	VDS=-30V, VGS=-10V, ID=-14A		21		nC
Gate-to-Source Charge	Qgs	VDS=-30V, VGS=-10V, ID=-14A		3.8		nC
Gate-to-Drain "Miller" Charge	Qgd	VDS=-30V, VGS=-10V, ID=-14A		4.5		nC
Diode Forward Voltage	VSD	IS=-14A, VGS=0V		-1.0	-1.2	V

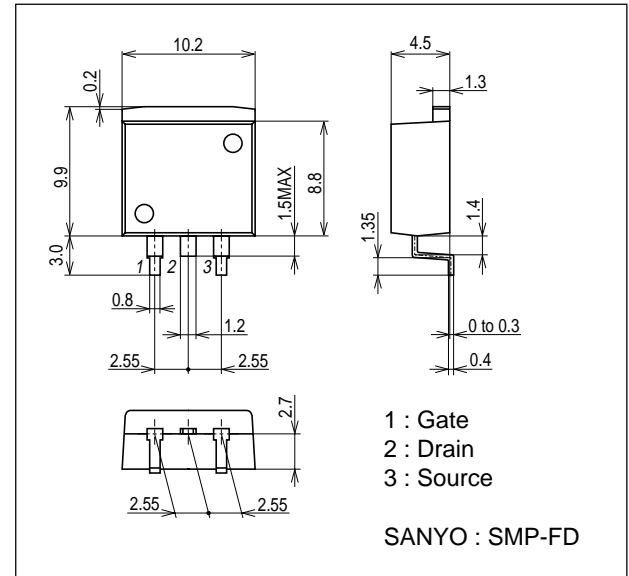
Package Dimensions

unit : mm (typ)
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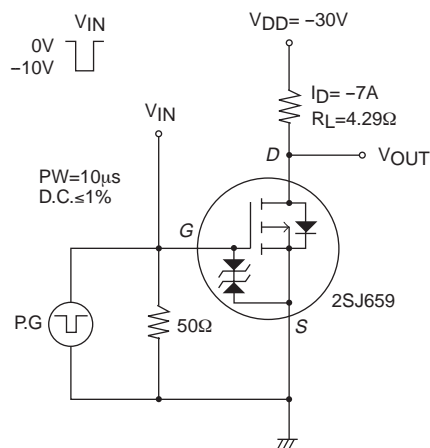


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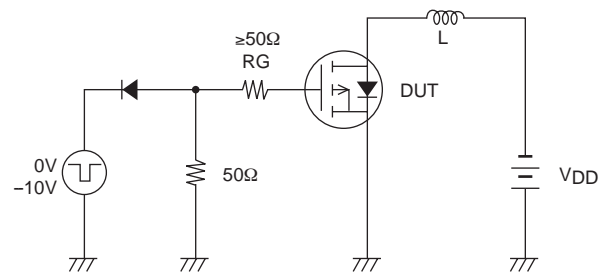
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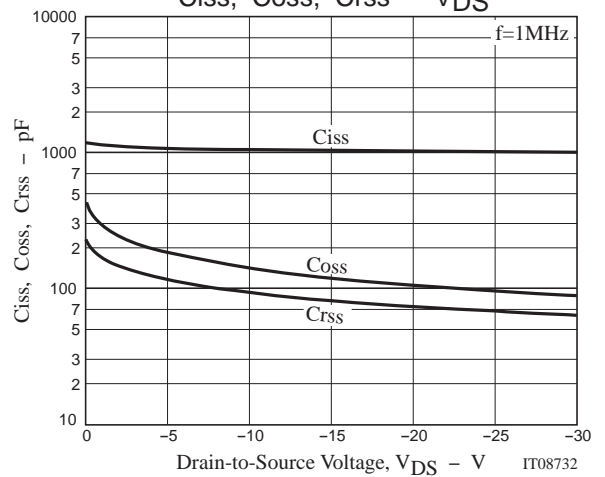
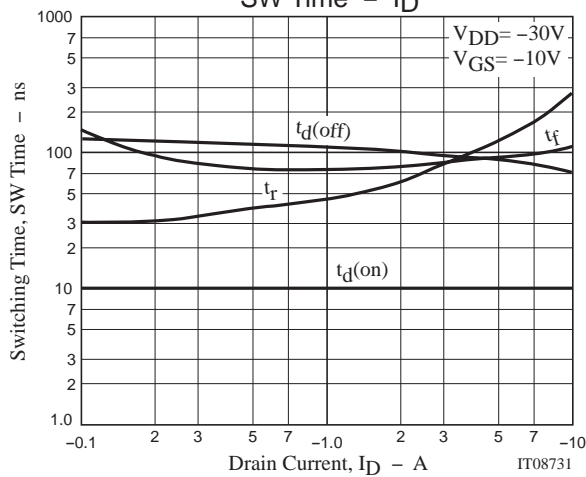
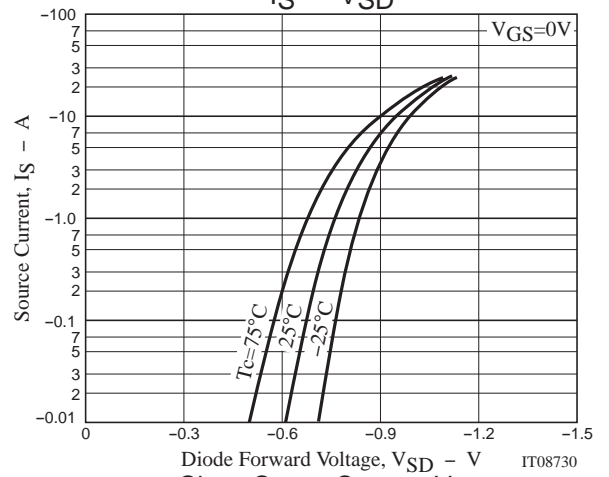
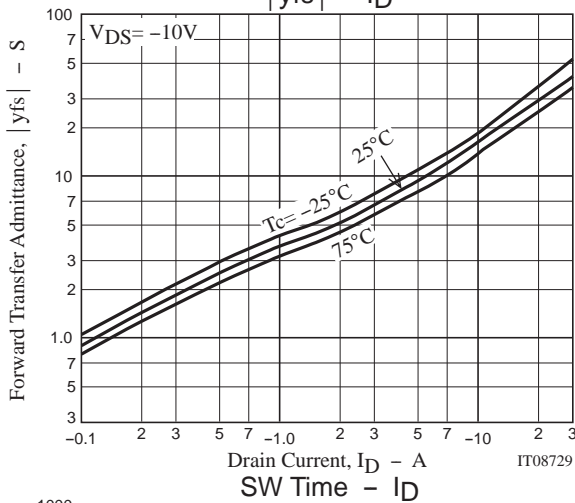
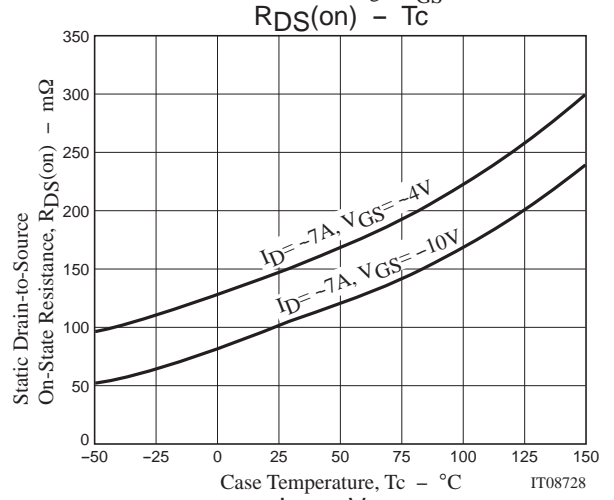
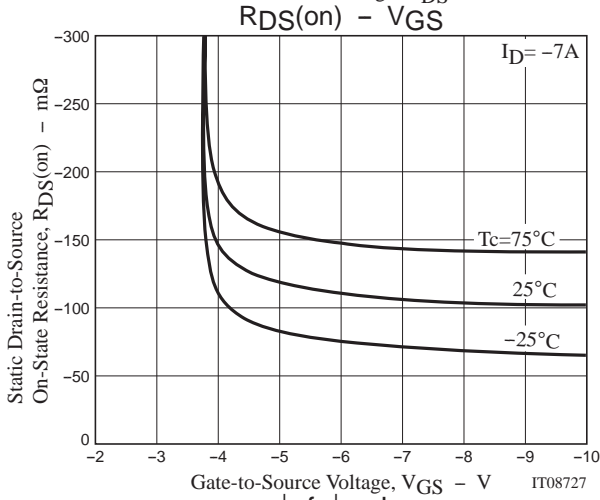
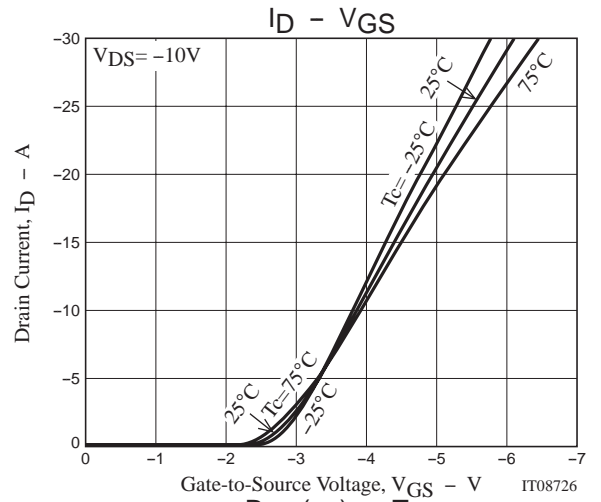
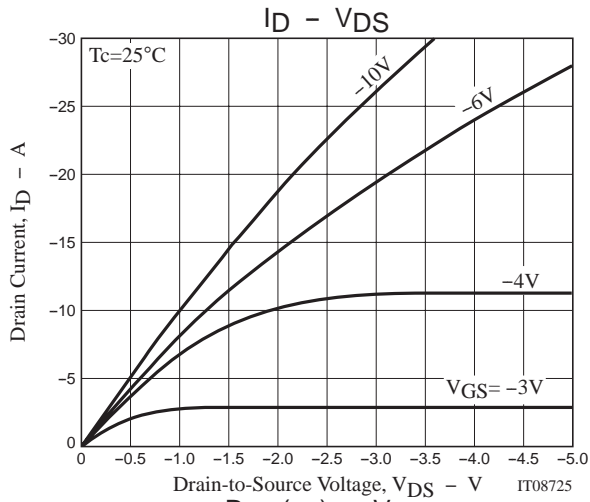


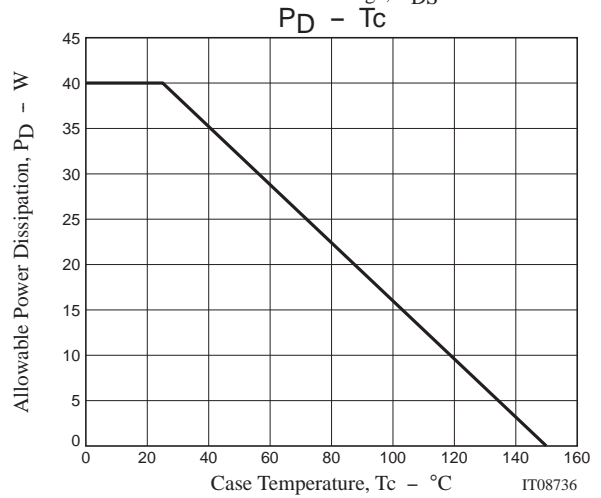
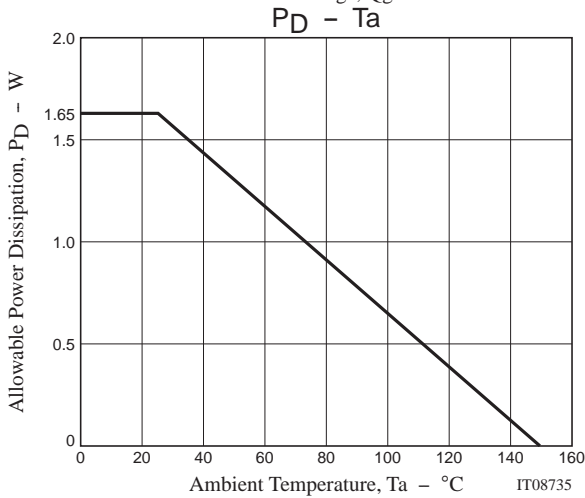
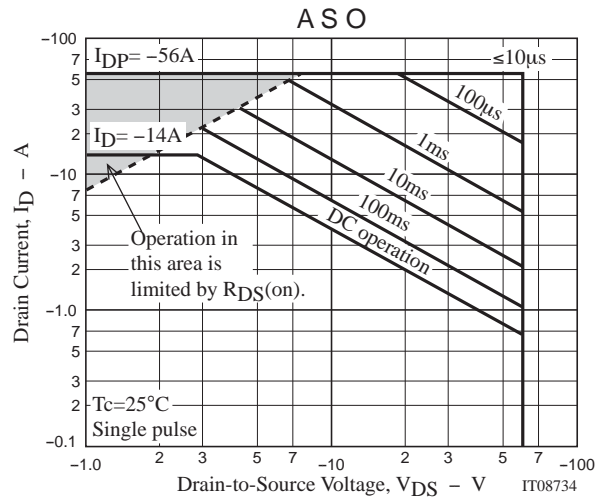
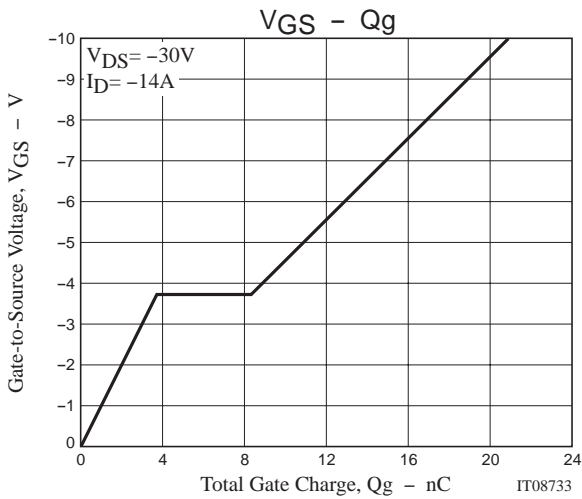
Switching Time Test Circuit



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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