



SANYO Semiconductors

DATA SHEET

2SK1896

N-Channel Silicon MOSFET
DC-DC Converter, Motor Drive Applications

Features

- Low ON resistance.
- Ultrahigh-speed switching.
- Low-voltage drive.
- Micaless package facilitating easy mounting.

Specifications

Absolute Maximum Ratings at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DS}		60	V
Gate-to-Source Voltage	V_{GS}		-20	V
Drain Current (DC)	I_D		15	A
Drain Current (Pulse)	I_{DP}	$PW \leq 10\mu\text{s}$, duty cycle $\leq 1\%$	60	A
Allowable Power Dissipation	P_D	$T_c = 25^\circ\text{C}$	2.0	W
Channel Temperature	T_{ch}		150	$^\circ\text{C}$
Storage Temperature	T_{stg}		-55 to +150	$^\circ\text{C}$

Electrical Characteristics at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = 1\text{mA}$, $V_{GS} = 0$	60			V
Gate-to-Source Breakdown Voltage	$V_{(BR)GSS}$	$I_G = -100\text{A}$, $V_{DS} = 0$	-20			V
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 60\text{V}$, $V_{GS} = 0$			100	μA
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS} = -16\text{V}$, $V_{DS} = 0$			-10	μA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS} = 10\text{V}$, $I_D = 1\text{mA}$	1.0		2.0	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS} = 10\text{V}$, $I_D = 9\text{A}$	8	13		S
Static Drain-to-Source ON-State Resistance	$R_{DS(on)}$	$I_D = 9\text{A}$, $V_{GS} = 10\text{V}$		0.05	0.07	Ω
	$R_{DS(on)}$	$I_D = 9\text{A}$, $V_{GS} = 4\text{V}$		0.07	0.095	Ω

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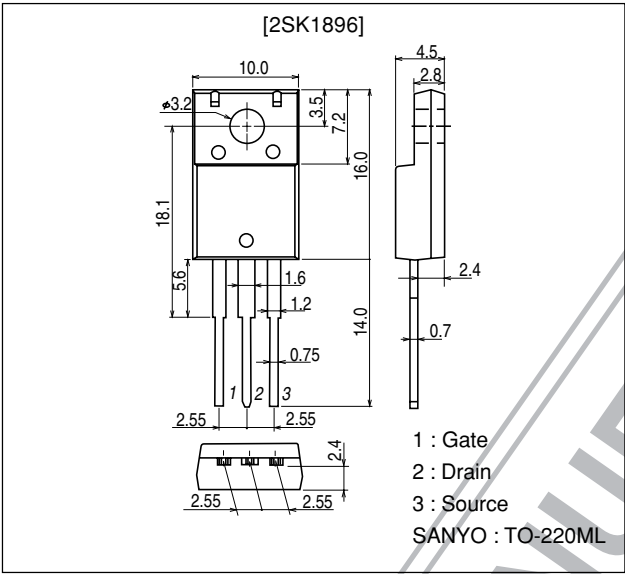
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss	V _{DS} =20V, f=1MHz		1230		pF
Output Capacitance	Coss	V _{DS} =20V, f=1MHz		330		pF
Reverse Transfer Capacitance	Crss	V _{DS} =20V, f=1MHz		65		pF
Turn-ON Delay Time	t _{d(on)}	See specified Test Circuit		14		ns
Rise Time	t _r	See specified Test Circuit		35		ns
Turn-OFF Delay Time	t _{d(off)}	See specified Test Circuit		250		ns
Fall Time	t _f	See specified Test Circuit		120		ns
Diode Forward Voltage	V _{SD}	I _S =15A, V _{GS} =0		1.0	1.5	V

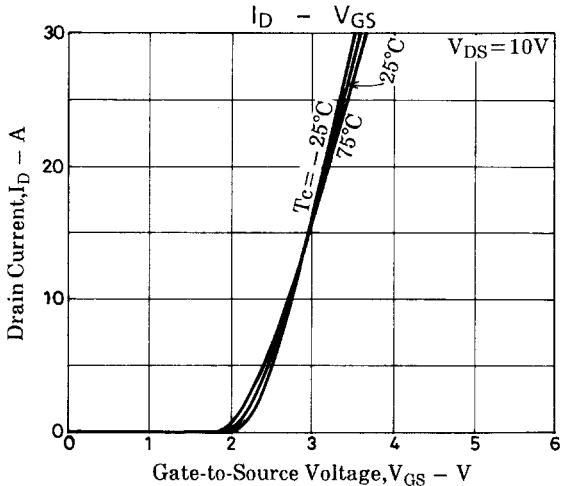
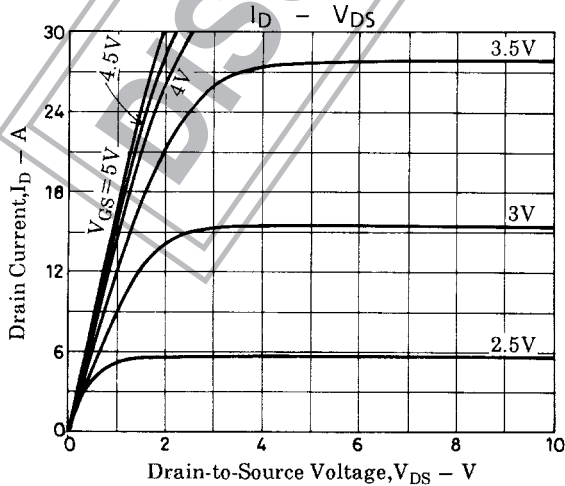
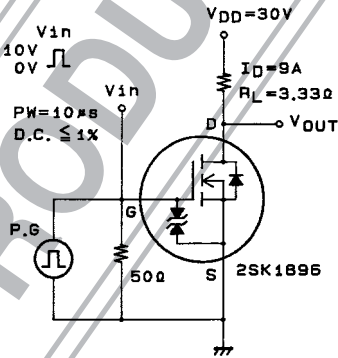
Package Dimensions

unit:mm

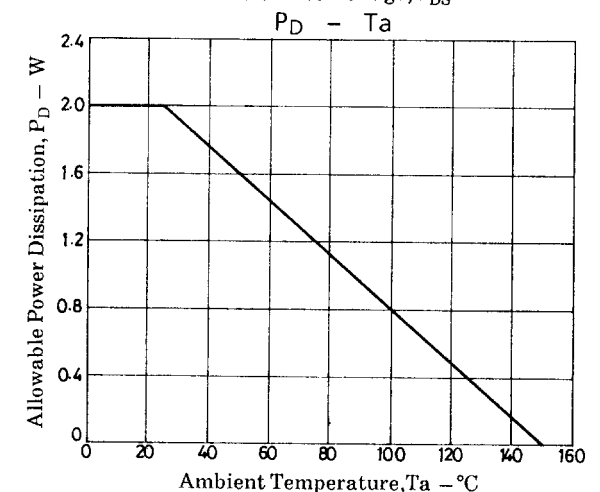
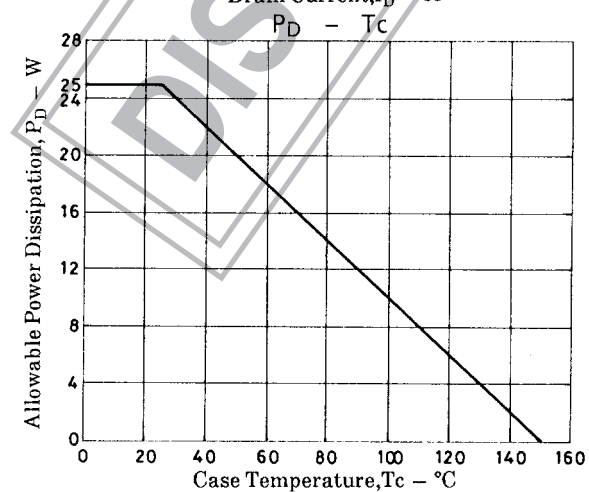
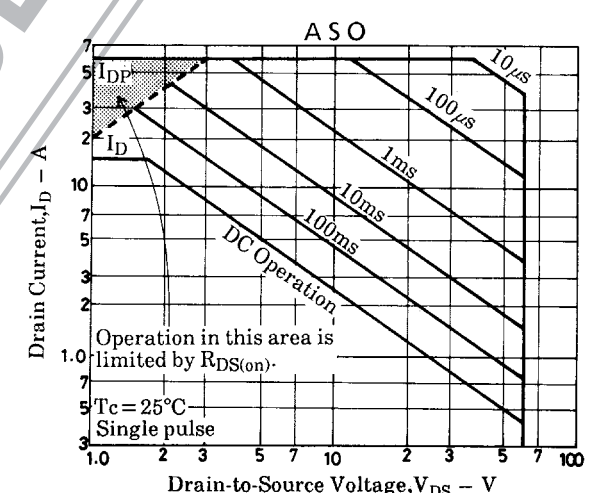
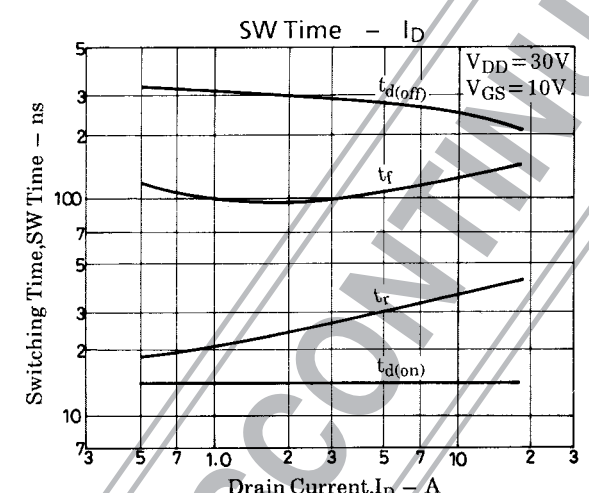
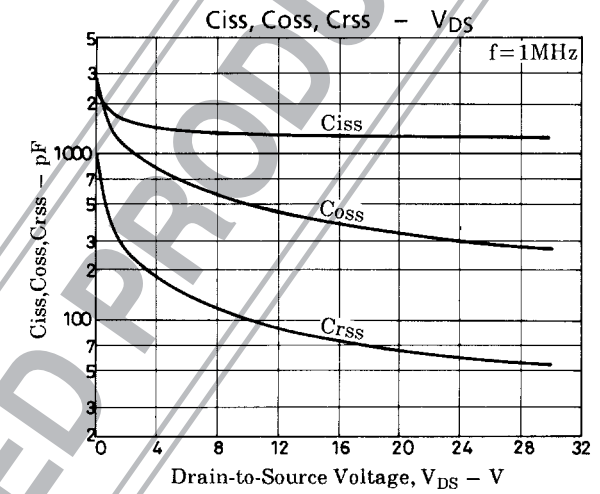
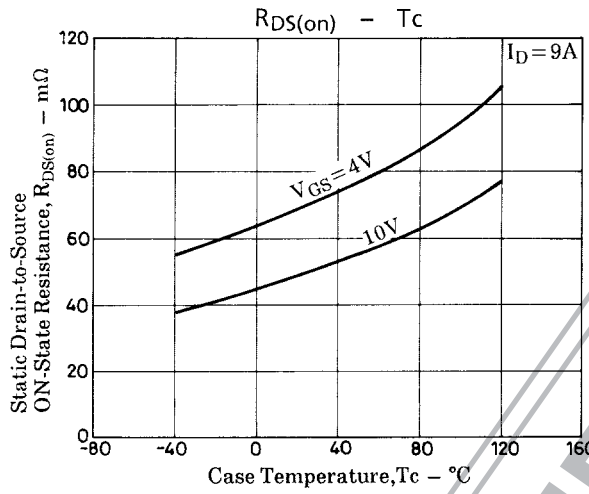
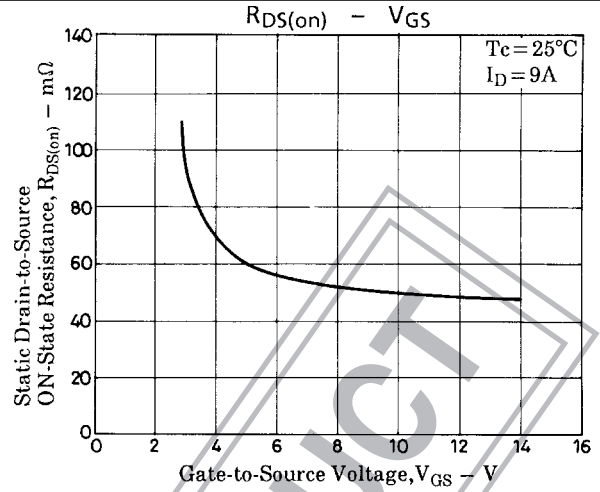
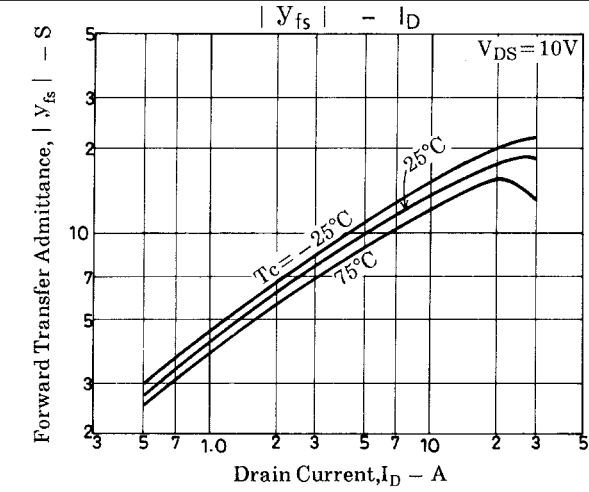
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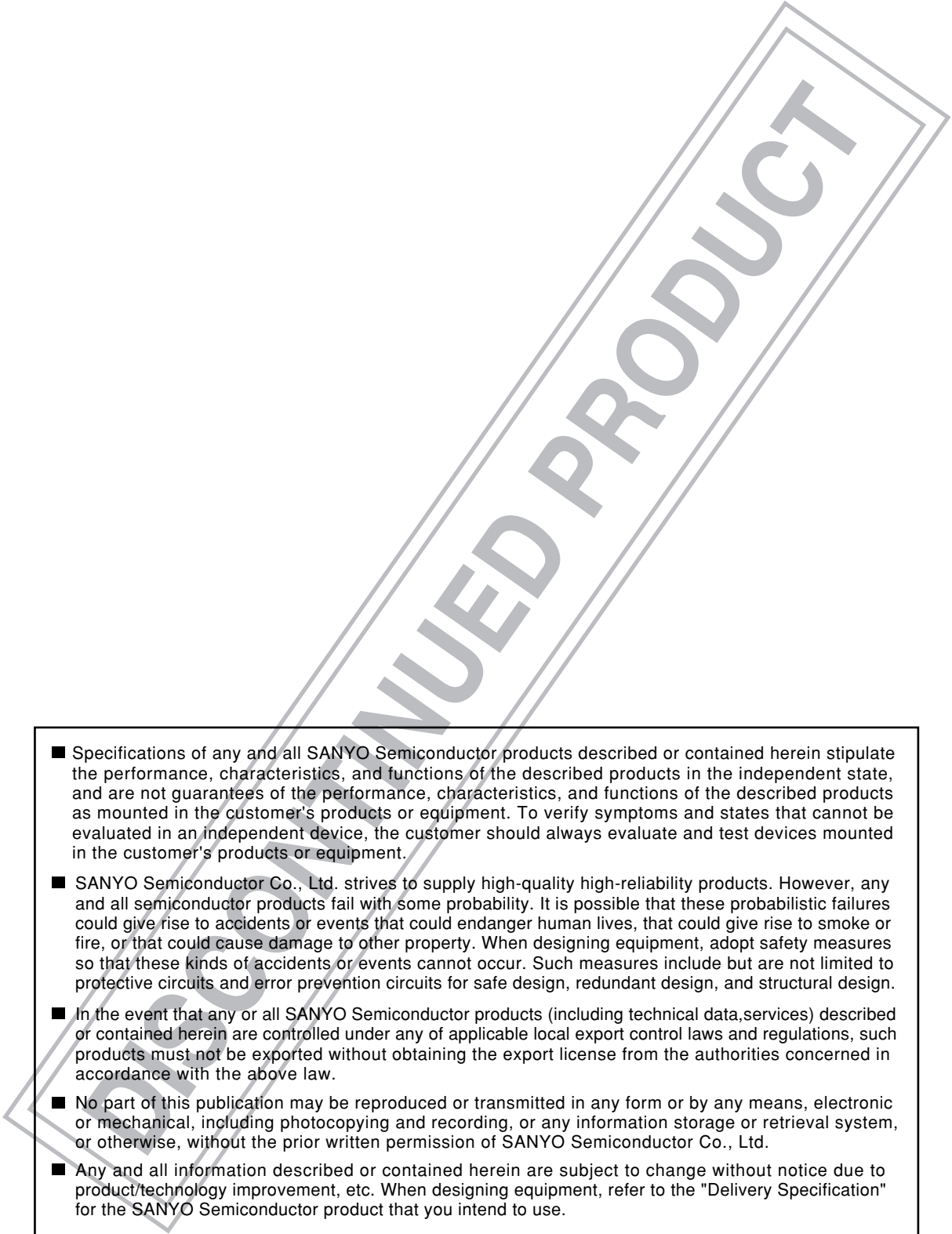


Switching Time Test Circuit



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