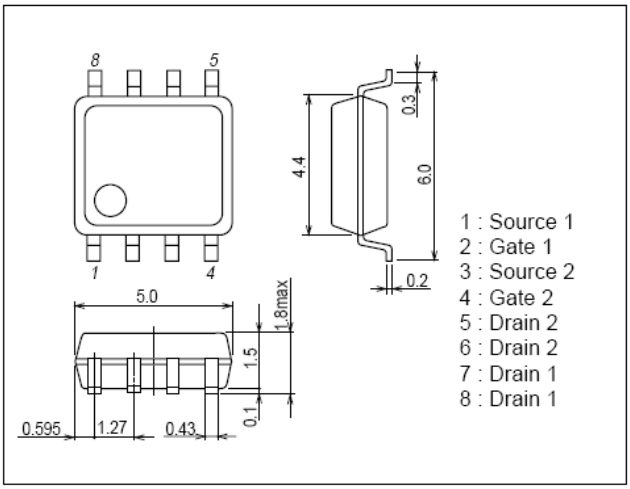
Si9926

Features

- Low On resistance.
- 1.8V drive.
- RoHS compliant.

Package Dimensions

unit : mm
SOP-8



Specifications

Absolute Maximum Ratings at T_a=25^{0}C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		20	V
Gate-to-Source Voltage	V_{GSS}		±12	V
Drain Current (DC)	I_D		7.6	A
Drain Current (Pulse)	I_{DP}	PW≤10uS, duty cycle≤1%	30	A
Allowable Power Dissipation	P_D	Mounted on a ceramic board (1000mm^2×0.8mm) 1unit	1.3	W
Total Dissipation	P_T	Mounted on a ceramic board (1000mm^2×0.8mm)	1.7	W
Channel Temperature	T_{ch}		150	^{0}C
Storage Temperature	T_{stg}		-55~+150	^{0}C

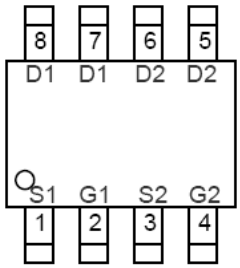
Electrical Characteristics at T_a=25^{0}C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	I_D=250uA, V_{GS}=0V	20			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=16V, V_{GS}=0V			1	uA
Gate-to-Source Leakage Current	I_{GSS}	V_{GS}=±10V, V_{DS}=0V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}= V_{GS}, I_D=250uA	0.5	0.8	1.0	V
Static Drain-to-Source On-State Resistance	$R_{DS(ON)}$	I_D=7A, V_{GS}=4.5V		21	26	mΩ
	$R_{DS(ON)}$	I_D=6A, V_{GS}=2.5V		27	34	mΩ
	$R_{DS(ON)}$	I_D=2A, V_{GS}=1.8V		38	52	mΩ
Input Capacitance	C_{iss}	V_{DS}=10V, V_{GS}=0V, f=1MHz		630		pF
Output Capacitance	C_{oss}	V_{DS}=10V, V_{GS}=0V, f=1MHz		164		pF
Reverse Transfer Capacitance	C_{rss}	V_{DS}=10V, V_{GS}=0V, f=1MHz		137		pF

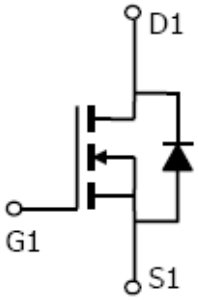
Electrical Characteristics at T_a=25^{0}C (Continued)

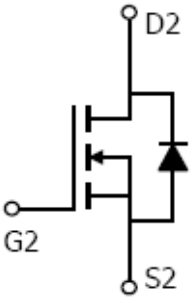
Parameter	Symbol	Conditions	Ratings			Unit
			min	Typ	max	
Turn-on Delay Time	$t_{d(on)}$	V_{GS}=5V, V_{DS}=10V, R_L=1.3Ω, R_{GEN}=3Ω		5.5		nS
Rise Time	t_r			14		nS
Turn-off Delay Time	$t_{d(off)}$			29		nS
Fall Time	t_f			10.2		nS
Total Gate Charge	Q_g	V_{DS}=10V, V_{GS}=4.5V, I_D=7.6A		8.8		nC
Gate-to-Source Charge	Q_{gs}			1		nC
Gate-to-Drain “Miller” Charge	Q_{gd}			3.7		nC
Diode Forward Voltage	V_{SD}	I_S=1A, V_{GS}=0V		0.7	1.0	V

Pin Description



TOP VIEW
SOP-8





Typical Characteristics at T_a=25^{0}C

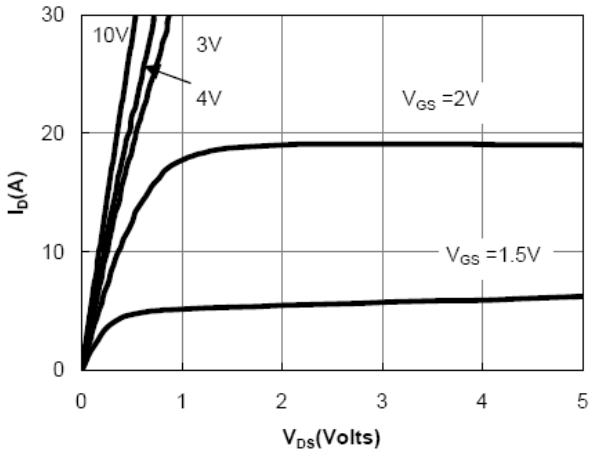


Figure 1: On-Regions Characteristics

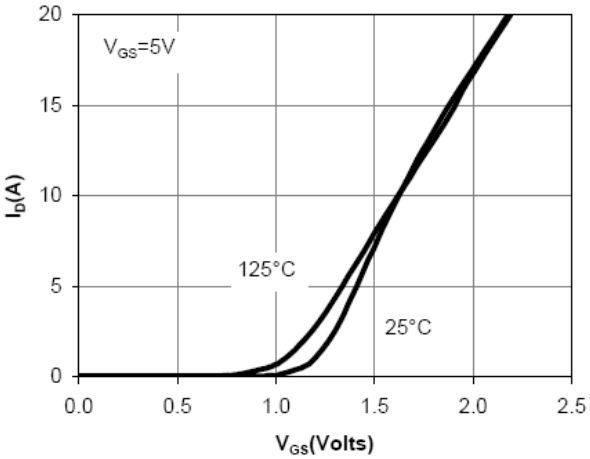


Figure 2: Transfer Characteristics

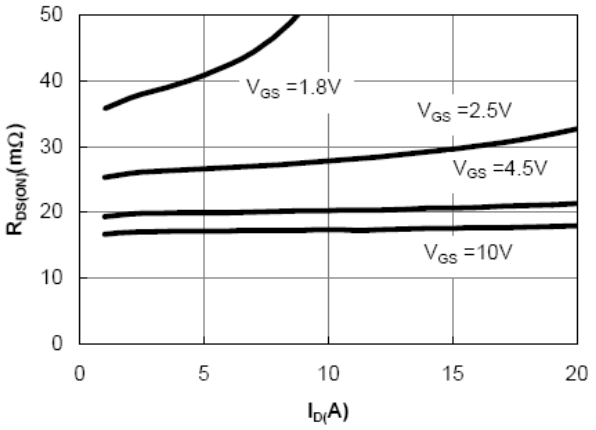


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

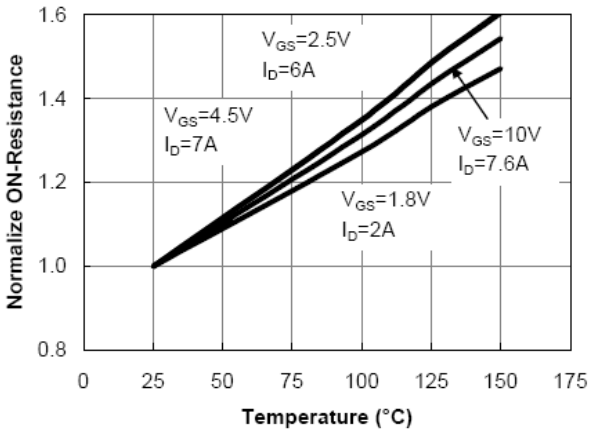


Figure 4: On-Resistance vs. Junction Temperature

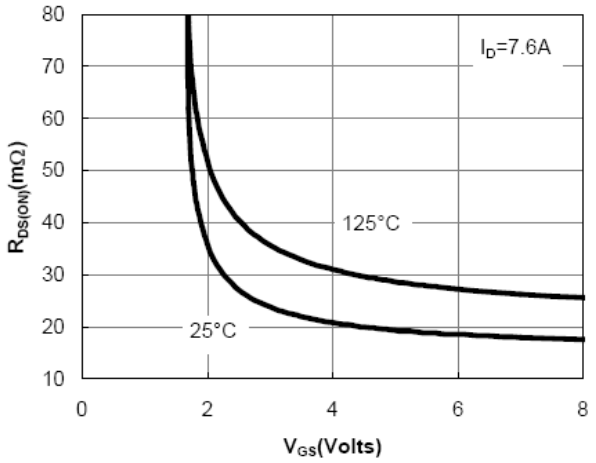


Figure 5: On-Resistance vs. Gate-Source Voltage

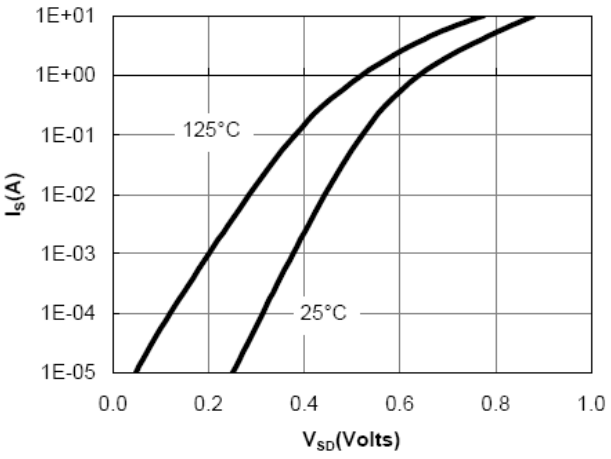


Figure 6: Body-Diode Characteristics

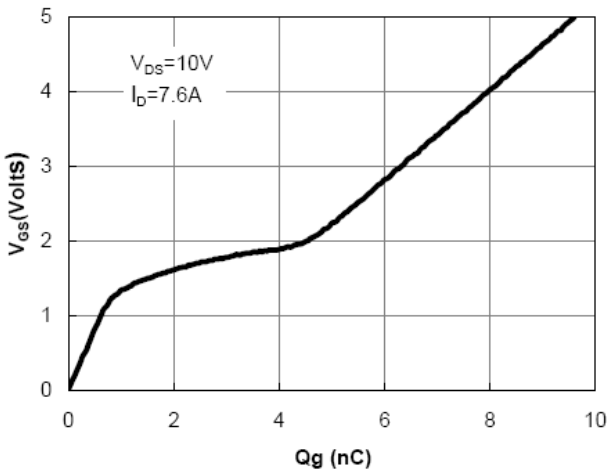


Figure 7: Gate-Charge Characteristics

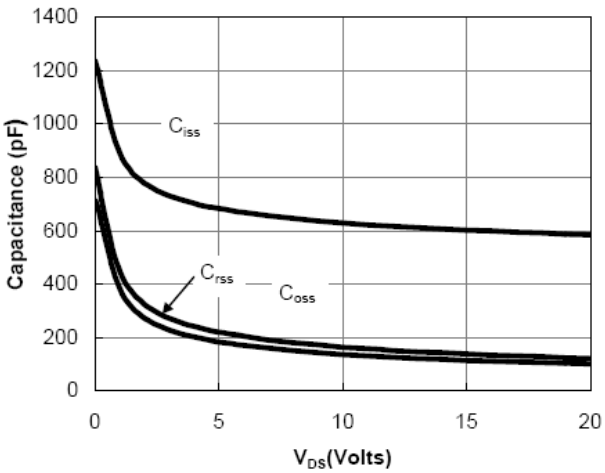


Figure 8: Capacitance Characteristics

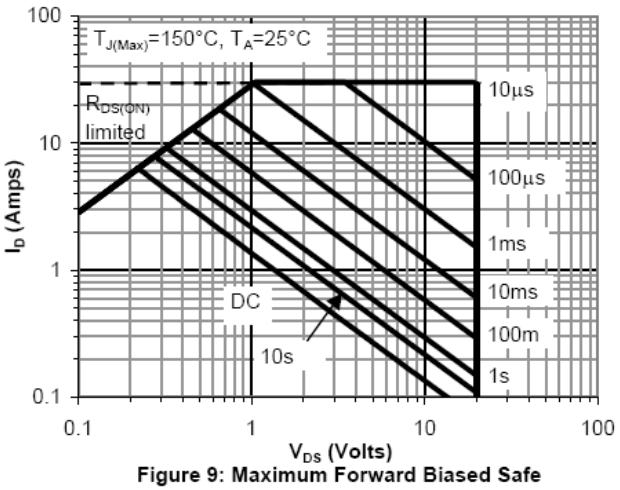


Figure 9: Maximum Forward Biased Safe Operating Area (Note E)

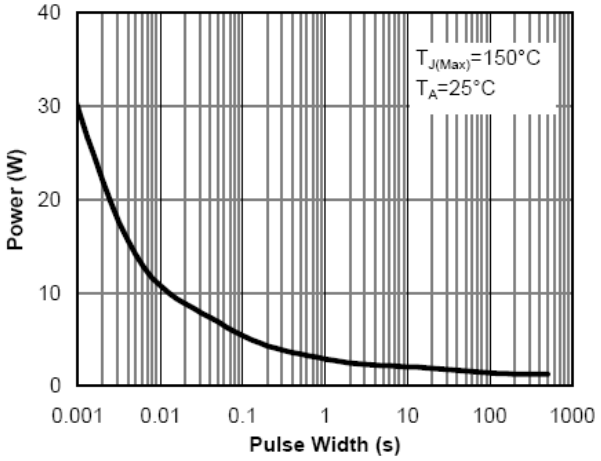


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note E)

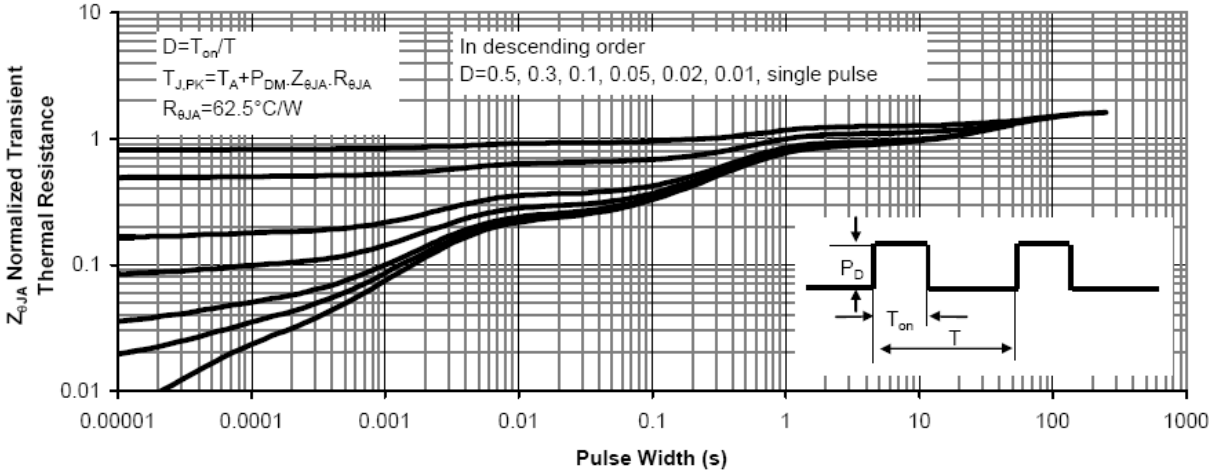


Figure 11: Normalized Maximum Transient Thermal Impedance