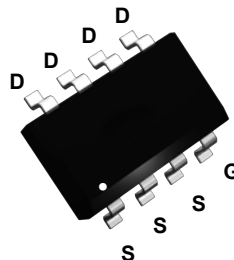
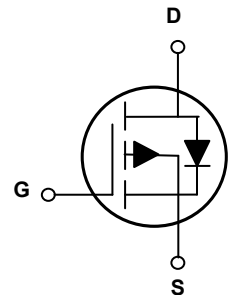


Main Product Characteristics

BV_{DSS}	-40V
$R_{DS(ON)}$	15m Ω (Max.)
I_D	-10A



SOP-8



Schematic Diagram

Features and Benefits

- Advanced MOSFET process technology
- Ideal for high efficiency switched mode power supplies
- Low on-resistance with low gate charge
- Fast switching and reverse body recovery



Description

The SSFQ4903 utilizes the latest techniques to achieve high cell density and low on-resistance. These features make this device extremely efficient and reliable for use in high efficiency switch mode power supply and a wide variety of other applications.

Absolute Maximum Ratings ($T_C=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Rating	Units
Drain-Source Voltage	V_{DS}	-40	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current-Continuous ($T_C=25^{\circ}\text{C}$)	I_D	-10	A
Drain Current-Continuous ($T_C=100^{\circ}\text{C}$)		-6.3	A
Drain Current-Pulsed ¹	I_{DM}	-40	A
Power Dissipation ($T_C=25^{\circ}\text{C}$)	P_D	4.2	W
Power Dissipation-Derate above 25°C		0.034	W/ $^{\circ}\text{C}$
Max. Thermal Resistance Junction to Case	$R_{\theta JC}$	30	$^{\circ}\text{C/W}$
Max. Thermal Resistance Junction to Ambient	$R_{\theta JA}$	60	$^{\circ}\text{C/W}$
Storage Temperature Range	T_{STG}	-55 to +150	$^{\circ}\text{C}$
Operating Junction Temperature Range	T_J	-55 to +150	$^{\circ}\text{C}$

Electrical Characteristics ($T_J=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
On / Off Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =-250μA	-40	-	-	V
Drain-Source Leakage Current	I _{DSS}	V _{DS} =-40V, V _{GS} =0V, T _J =25°C	-	-	-1	μA
		V _{DS} =-32V, V _{GS} =0V, T _J =125°C	-	-	-10	μA
Gate-Source Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V	-	-	±100	nA
Static Drain-Source On-Resistance	R _{DS(ON)}	V _{GS} =-10V, I _D =-10A	-	11.5	15	mΩ
		V _{GS} =-4.5V, I _D =-8A	-	16	22	mΩ
Gate Threshold Voltage	V _{GS(th)}	V _{GS} =V _{DS} , I _D =-250μA	-1.0	-1.6	-2.5	V
Forward Transconductance	g _{fs}	V _{DS} =-10V, I _D =-10A	-	13	-	S
Dynamic and Switching Characteristics						
Total Gate Charge ^{2,3}	Q _g	V _{DS} =-32V, V _{GS} =-4.5V, I _D =-10A	-	22.2	40	nC
Gate-Source Charge ^{2,3}	Q _{gs}		-	8.2	16	
Gate-Drain Charge ^{2,3}	Q _{gd}		-	8.8	16	
Turn-On Delay Time ^{2,3}	t _{d(on)}	V _{DD} =-20V, V _{GS} =-10V, R _G =6Ω, I _D =-1A	-	23	40	nS
Rise Time ^{2,3}	t _r		-	10	20	
Turn-Off Delay Time ^{2,3}	t _{d(off)}		-	135	250	
Fall Time ^{2,3}	t _f		-	46	90	
Input Capacitance	C _{iss}	V _{DS} =-25V, V _{GS} =0V, F=1MHz	-	2757	4000	pF
Output Capacitance	C _{oss}		-	240	360	
Reverse Transfer Capacitance	C _{rss}		-	137	200	
Drain-Source Ratings and Characteristics						
Continuous Source Current	I _S	V _G =V _D =0V, Force Current	-	-	-10	A
Pulsed Source Current	I _{SM}		-	-	-20	A
Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =-1A, T _J =25°C	-	-	-1	V

Notes:

1. Repetitive rating: Pulsed width limited by maximum junction temperature.
2. The data tested by pulsed, pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$.
3. Essentially independent of operating temperature.

Typical Electrical and Thermal Characteristic Curves

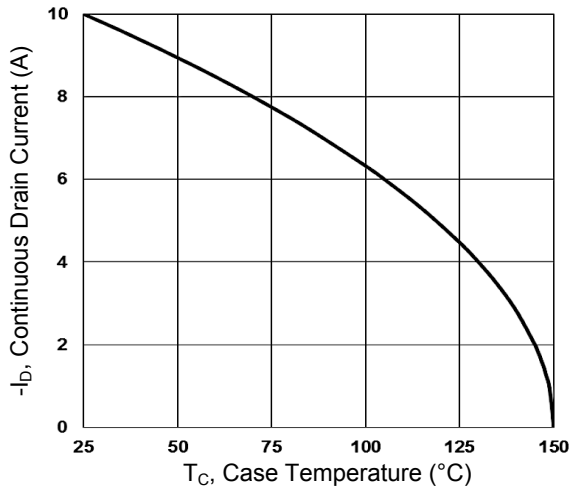


Figure 1. Continuous Drain Current vs. T_c

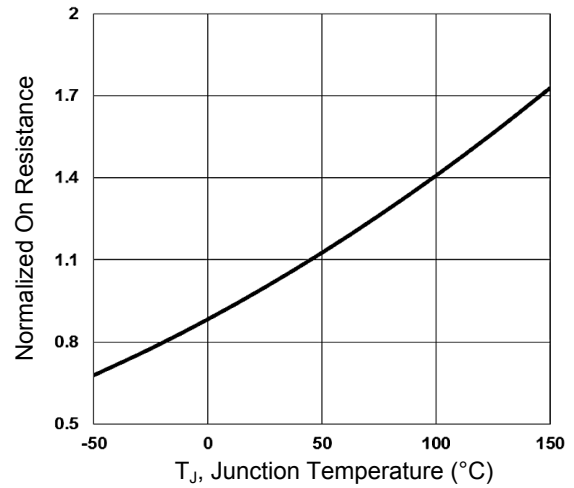


Figure 2. Normalized $R_{DS(ON)}$ vs. T_J

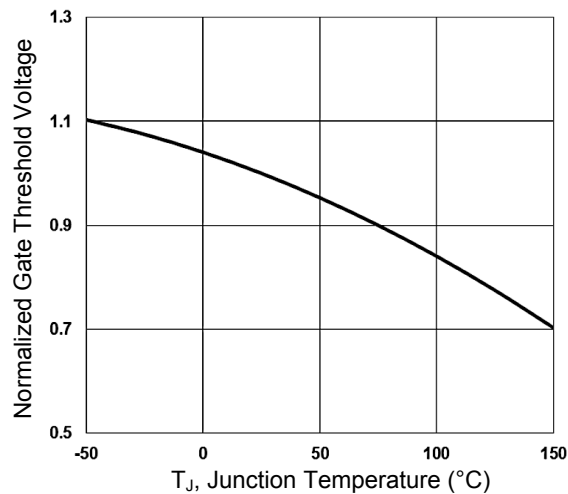


Figure 3. Normalized V_{th} vs. T_J

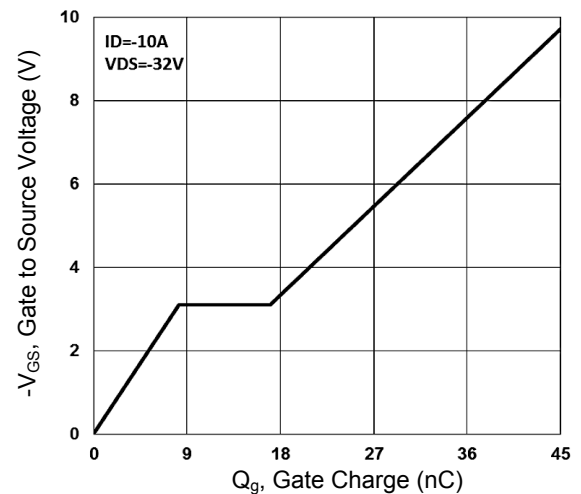


Figure 4. Gate Charge Waveform

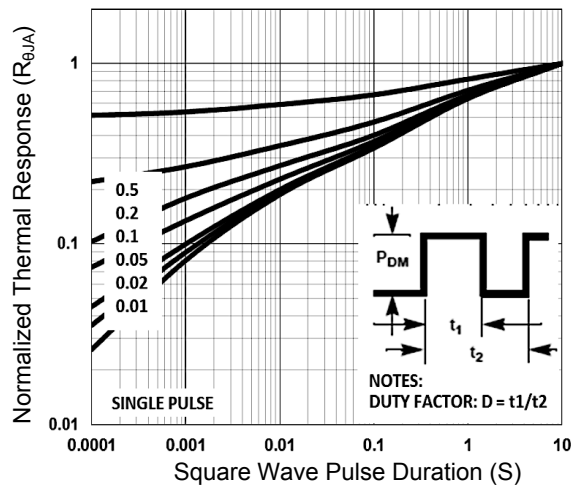


Figure 5. Normalized Transient Impedance

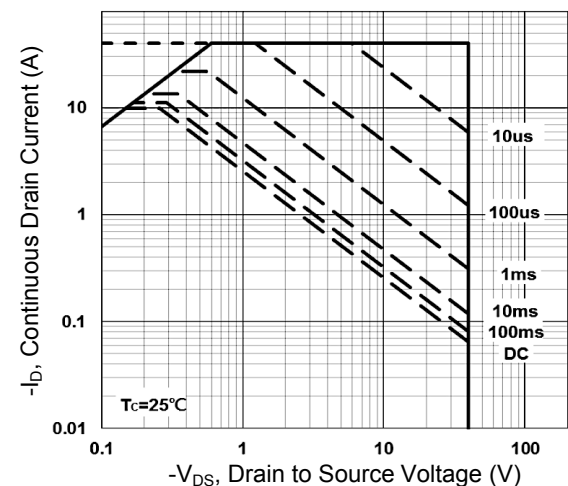
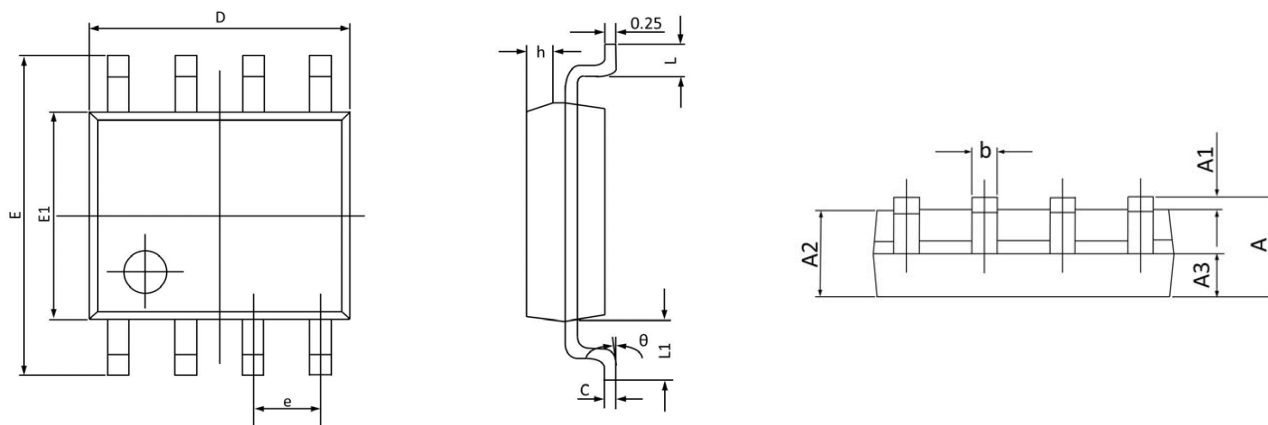


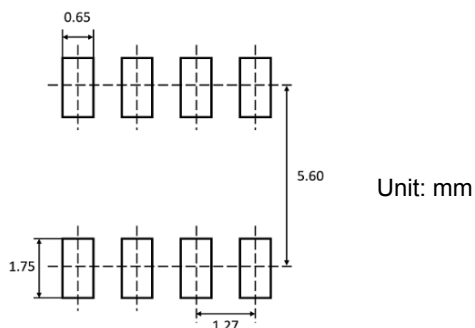
Figure 6. Maximum Safe Operation Area

Package Outline Dimensions (SOP-8)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.350	1.800	0.053	0.069
A1	0.050	0.250	0.002	0.010
A2	1.250	1.650	0.049	0.065
A3	0.500	0.700	0.020	0.028
b	0.300	0.510	0.012	0.020
C	0.150	0.260	0.006	0.010
D	4.700	5.100	0.185	0.201
E	5.800	6.200	0.228	0.244
E1	3.700	4.100	0.146	0.161
e	1.270 BSC		0.050 BSC	
h	0.250	0.500	0.010	0.020
L	0.400	1.000	0.016	0.039
L1	1.050 BSC		0.041 BSC	
θ	0°	8°	0°	8°

Recommended Pad Layout



Order Information

Device	Package	Marking	Carrier	Quantity
SSFQ4903	SOP-8	DS4903	Tape & Reel	3,000 Pcs / Reel