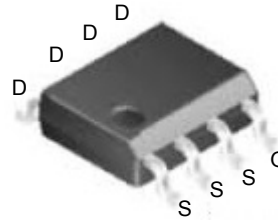
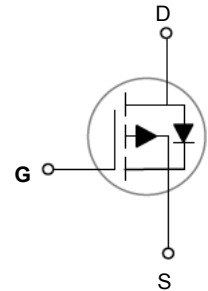


Main Product Characteristics

$V_{(BR)DSS}$	-30V
$R_{DS(ON)}$	9.5mΩ
I_D	-13A



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 SSFQ3903 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 ($T_C=25^{\circ}C$ unless otherwise specified)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	±20	V
Drain Current – Continuous ($T_C=25^{\circ}C$)	I_D	-13	A
Drain Current – Continuous ($T_C=100^{\circ}C$)		-7.8	A
Drain Current – Pulsed ¹	I_{DM}	-52	A
Power Dissipation ($T_C=25^{\circ}C$)	P_D	4.2	W
Power Dissipation – Derate above 25°C		0.034	W/°C
Storage Temperature Range	T_{STG}	-55 to +150	°C
Operating Junction Temperature Range	T_J	-55 to +150	°C

Thermal Characteristics

Parameter	Symbol	Typ.	Max.	Unit
Thermal Resistance Junction to Case	$R_{\theta JC}$	---	30	°C/W
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	---	60	°C/W

Electrical Characteristics (T_J=25°C unless otherwise specified)

DUFUa Yhf	Gna Vc`	7 cbX]hcbg	A]b"	Hnd"	AU "	I bjh
CZ7\ UFUMYf]gh]Vg						
Ö æ] EÜ[~ !&ÁÓ^æá[,) ÁX[æ^	ÓXóúú	XóúMEXÉQVÉ€ CE	È€	ÈÈ	ÈÈ	X
ÓXóúúAV^ [^!æ^ !^ÁÓ[^~æ} c	Δ ÓXóúúEΔ Vr	Ü^~^!^} &^Áq Áq »ÖÉQVÉ€ CE	ÈÈ	ÈÈH	ÈÈ	XĐÓ
Ö æ] EÜ[~ !&ÁÓ^æá^ ÁÓ^ !!^} c	Qúú	XóúMEXÉQVÉ€ »Ö	ÈÈ	ÈÈ	È	~ CE
		XóúMEXÉQVÉ€ »Ö	ÈÈ	ÈÈ	È€	~ CE
Öæ^ EÜ[~ !&ÁÓ^æá^ ÁÓ^ !!^} c	Qúú	XóúMEXÉQVÉ€	ÈÈ	ÈÈ	! F€€	} CE
Cb 7\ UFUMYf]gh]Vg						
ÜæáÁÓ æ] EÜ[~ !&ÁÜ; EÜ^~ á çæ &	Üóúq]D	XóúMEXÉQVÉ€	ÈÈ	i	JÈ	{
		XóúMEXÉQVÉ€	ÈÈ	FGÈ	Fí	{
Öæ^ ÁV^ @^ @ áÁX[æ^	XóúqæD	XóúMEXÉQVÉ€	È	ÈÈ	ÈÈ	X
		XóúMEXÉQVÉ€	ÈÈ	i	ÈÈ	{ XĐÓ
Ø[!, çáÁV!ç} • &] á ~ çæ &	* •	XóúMEXÉQVÉ€	ÈÈ	FH	ÈÈ	Ü
8 nbUa]WubX`Gk]HW]b[`7\ UFUMYf]gh]Vg						
V[çáÁÓæ^ ÁÓçæ^ * ^çÈH	Ü•	XóúMEXÉQVÉ€	ÈÈ	H	íí	} Ó
Öæ^ EÜ[~ !&ÁÓçæ^ * ^çÈH	Ü••		ÈÈ	FÈÈ	Fí	
Öæ^ EÜ[çáÁÓçæ^ * ^çÈH	Ü•á		ÈÈ	FÈÈ	Fí	
V^ !; EÜ; ÁÓ^ çáÁVq ^çÈH	Vaq;D	XóúMEXÉQVÉ€ »Ö	ÈÈ	G ÈÈ	H	} Ü
Üá^ ÁVq ^çÈH	Ví		ÈÈ	FÈÈ	Fí	
V^ !; EÜ~ ÁÓ^ çáÁVq ^çÈH	Vaq~D		ÈÈ	Fíí ÈÈ	GÈ€	
ØçáÁVq ^çÈH	V-		ÈÈ	i €	íí	
Q[~ çÓç çááçæ &	Öá•	XóúMEXÉQVÉ€ »Ö	ÈÈ	HÈ€	íí€€] Ø
U^ ç ~ çÓç çááçæ &	Ö!••		ÈÈ	! F€	í€€	
Üç^!•^ ÁV!ç} • ^! ÁÓç çááçæ &	Ö!••		ÈÈ	G €	í€€	
Öæ^ ÁV^~ á çæ &	Ü•	XóúMEXÉQVÉ€ »Ö	ÈÈ	i ÈÈ	FG	
8 fU]b!Gci fW'8]cXY7\ UFUMYf]gh]Vg`UbX`AU]a i a `F U]b[g						
Ö[] ç ~ !• ÁÜ[~ !&ÁÓ^ !!^} c	Q	XóúMEXÉQVÉ€ !&ÁÓ^ !!^} c	ÈÈ	ÈÈ	ÈH	CE
Ü^ !•^ ÁÜ[~ !&ÁÓ^ !!^} c	Qr		ÈÈ	ÈÈ	È2	CE
Öq á^ ÁQ[!, çáÁX[æ^	Xúó	XóúMEXÉQVÉ€ »Ö	ÈÈ	ÈÈ	È	X

Note:

1. Repetitive Rating: Pulsed width limited by maximum junction temperature.
2. The data tested by pulsed, pulse width ≤ 300 uS, duty cycle ≤ 2 % .
3. Essentially independent of operating temperature.

Typical Electrical and Thermal Characteristic Curves

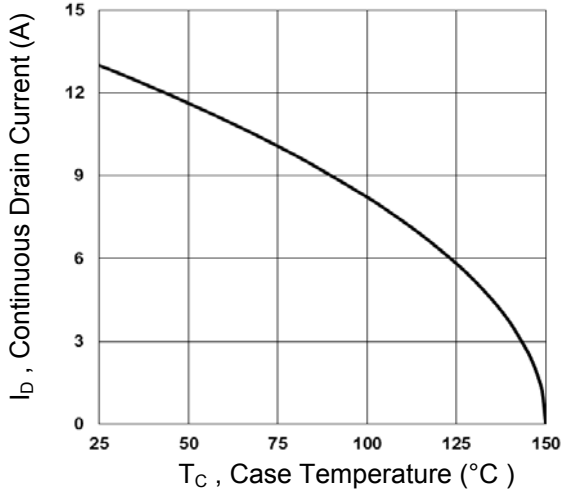


Fig.1 Continuous Drain Current vs. T_c

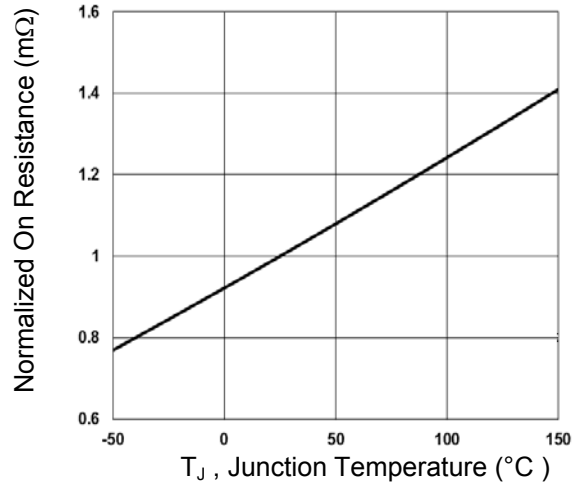


Fig.2 Normalized $R_{DS(ON)}$ vs. T_j

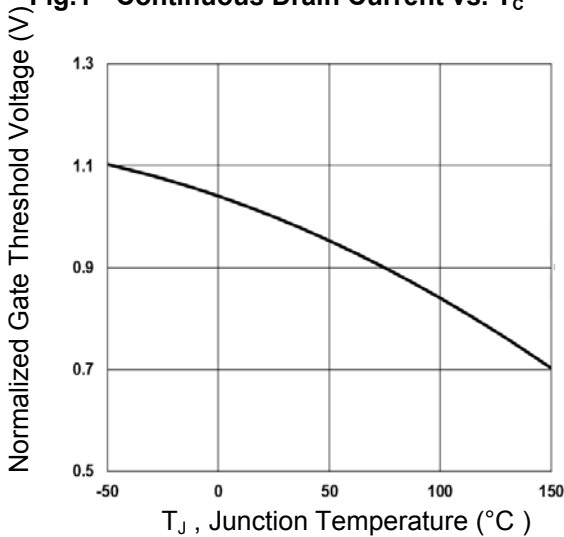


Fig.3 Normalized V_{th} vs. T_j

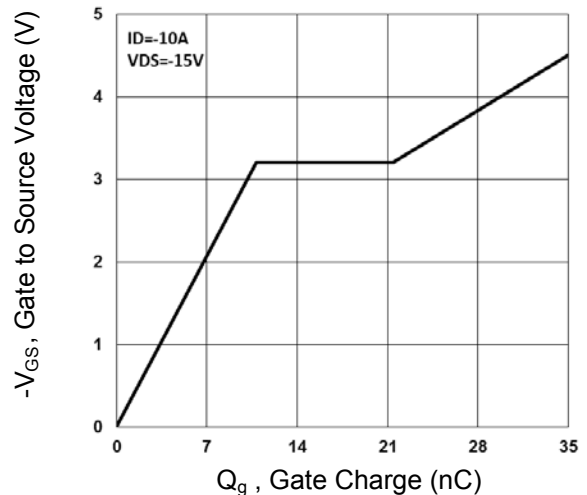


Fig.4 Gate Charge Waveform

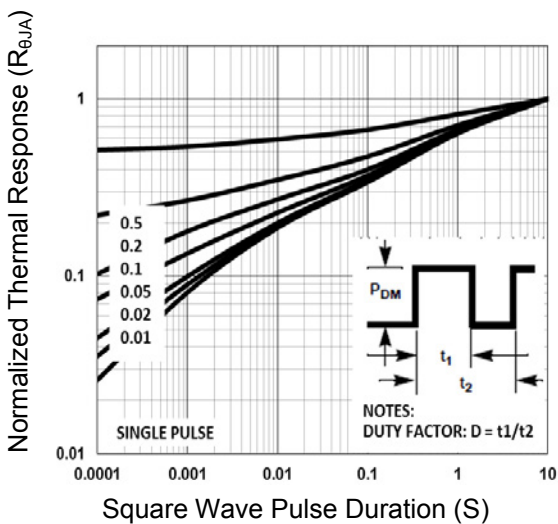


Fig.5 Normalized Transient Impedance

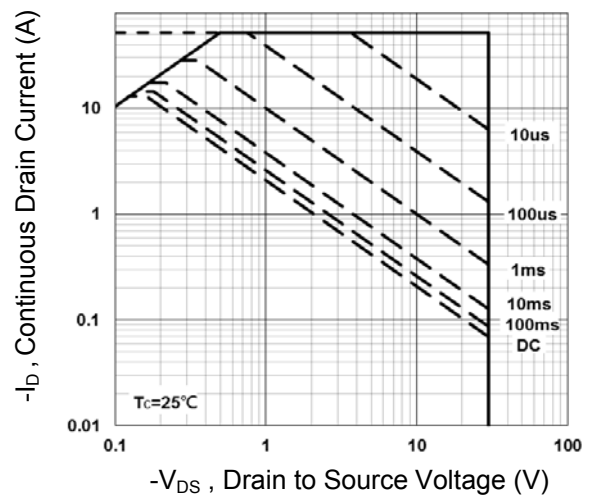


Fig.6 Maximum Safe Operation Area

Typical Electrical and Thermal Characteristic Curves

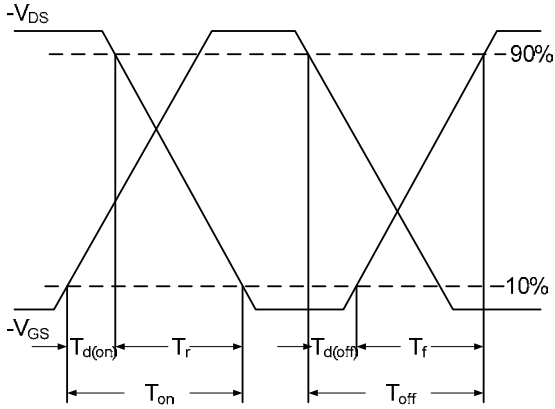


Fig.7 Switching Time Waveform

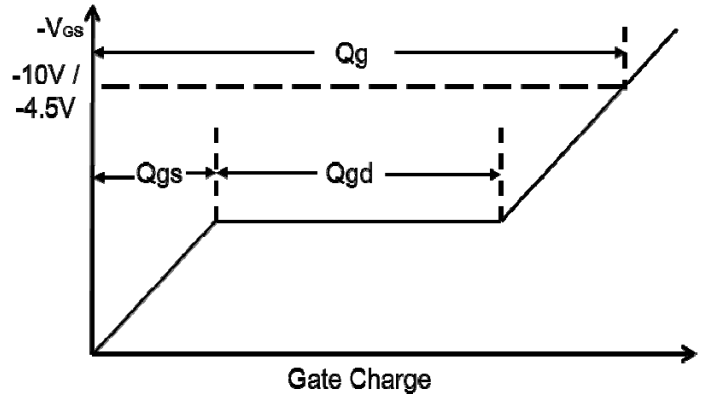
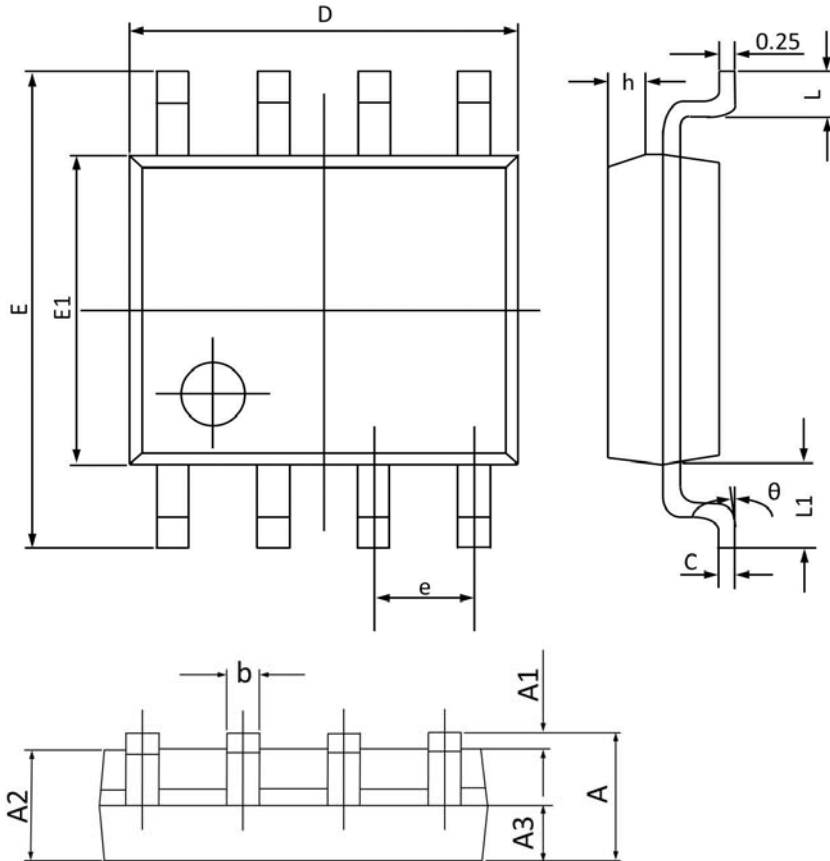


Fig.8 Gate Charge Waveform

Package Outline Dimensions

SOP-8



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.35	1.75	0.053	0.068
A1	0.1	0.25	0.004	0.009
A2	1.3	1.5	0.052	0.059
A3	0.6	0.7	0.024	0.027
b	0.39	0.48	0.016	0.018
c	0.21	0.26	0.009	0.01
D	4.7	5.1	0.186	0.2
E	5.8	6.2	0.229	0.244
E1	3.7	4.1	0.146	0.161
e	1.270(BSC)		0.050(BSC)	
h	0.25	0.5	0.01	0.019
L	0.5	0.8	0.019	0.031
L1	1.050(BSC)		0.041(BSC)	
θ	0°	8°	0°	8°