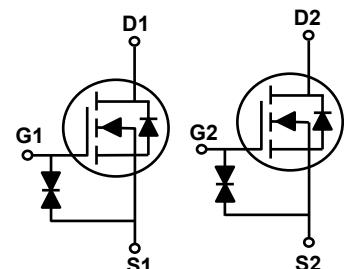
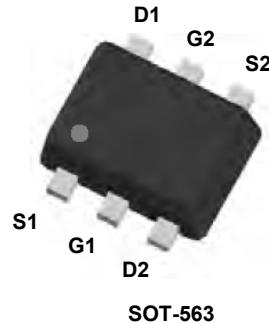


Main Product Characteristics

$V_{(BR)DSS}$	60V
$R_{DS(ON)}$	3Ω
I_D	300mA



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 SSF6880Y 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	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current – Continuous ($T_c=25^\circ\text{C}$)	I_D	300	mA
Drain Current – Continuous ($T_c=100^\circ\text{C}$)		240	mA
Drain Current – Pulsed ¹	I_{DM}	0.6	A
Power Dissipation ($T_c=25^\circ\text{C}$)	P_D	312	mW
Power Dissipation – Derate above 25°C		2.5	mW/ $^\circ\text{C}$
Storage Temperature Range	T_{STG}	-55 to +150	$^\circ\text{C}$
Operating Junction Temperature Range	T_J	-55 to +150	$^\circ\text{C}$

Thermal Characteristics

Parameter	Symbol	Typ.	Max.	Unit
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	---	400	$^\circ\text{C/W}$

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

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	$\text{V}_{\text{GS}}=0\text{V}, \text{I}_D=250\mu\text{A}$	60	---	---	V
BV_{DSS} Temperature Coefficient	$\triangle \text{BV}_{\text{DSS}}/\triangle T_J$	Reference to 25°C , $\text{I}_D=1\text{mA}$	---	0.05	---	$\text{V}/^\circ\text{C}$
Drain-Source Leakage Current	I_{DSS}	$\text{V}_{\text{DS}}=48\text{V}, \text{V}_{\text{GS}}=0\text{V}, \text{T}_J=25^\circ\text{C}$	---	---	1	μA
		$\text{V}_{\text{DS}}=48\text{V}, \text{V}_{\text{GS}}=0\text{V}, \text{T}_J=85^\circ\text{C}$	---	---	10	μA
Gate-Source Leakage Current	I_{GSS}	$\text{V}_{\text{GS}}=\pm 20\text{V}, \text{V}_{\text{DS}}=0\text{V}$	---	---	± 20	μA
On Characteristics						
Static Drain-Source On-Resistance	$\text{R}_{\text{DS}(\text{ON})}$	$\text{V}_{\text{GS}}=10\text{V}, \text{I}_D=0.3\text{A}$	---	1.1	3	Ω
		$\text{V}_{\text{GS}}=4.5\text{V}, \text{I}_D=0.2\text{A}$	---	1.3	4	
Gate Threshold Voltage	$\text{V}_{\text{GS}(\text{th})}$	$\text{V}_{\text{GS}}=\text{V}_{\text{DS}}, \text{I}_D=250\mu\text{A}$	1.2	2.0	2.5	V
$\text{V}_{\text{GS}(\text{th})}$ Temperature Coefficient	$\triangle \text{V}_{\text{GS}(\text{th})}$		---	3	---	$\text{mV}/^\circ\text{C}$
Dynamic and Switching Characteristics						
Input Capacitance	C_{iss}	$\text{V}_{\text{DS}}=30\text{V}, \text{V}_{\text{GS}}=0\text{V}, \text{F}=1\text{MHz}$	---	23	46	pF
Output Capacitance	C_{oss}		---	16	32	
Reverse Transfer Capacitance	C_{rss}		---	10	20	
Drain-Source Diode Characteristics and Maximum Ratings						
Continuous Source Current	I_S	$\text{V}_G=\text{V}_D=0\text{V}, \text{Force Current}$	---	---	300	mA
Pulsed Source Current	I_{SM}		---	---	600	mA
Diode Forward Voltage	V_{SD}	$\text{V}_{\text{GS}}=0\text{V}, \text{I}_S=0.2\text{A}, \text{T}_J=25^\circ\text{C}$	---	---	1	V

Note:

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

Typical Electrical and Thermal Characteristic Curves

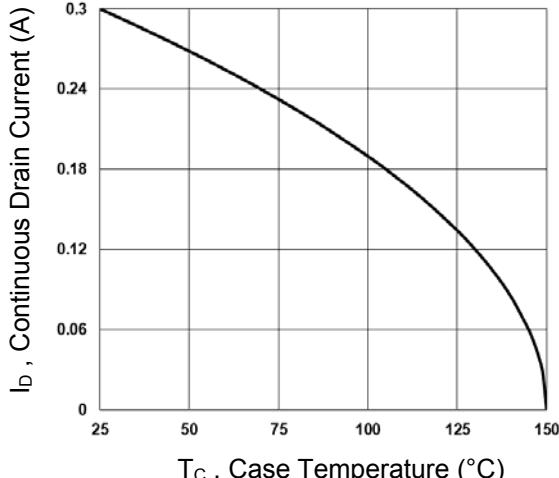


Fig.1 Continuous Drain Current vs. T_c

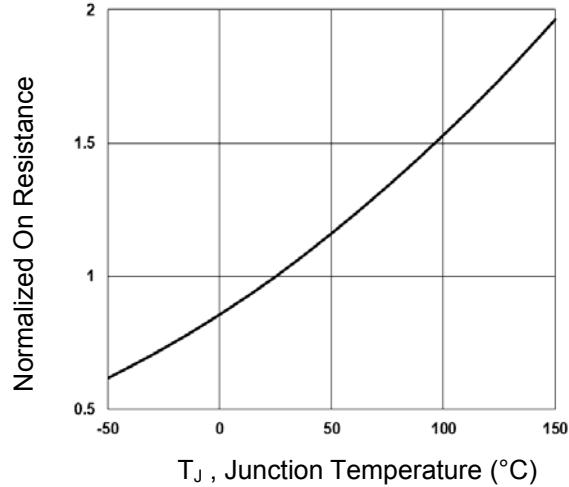


Fig.2 Normalized R_{DS(ON)} vs. T_j

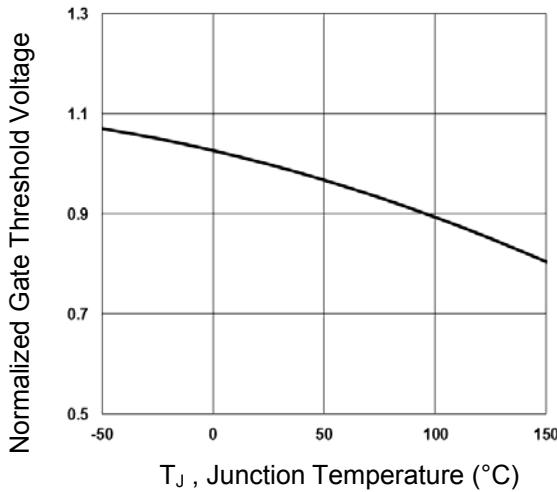


Fig.3 Normalized V_{th} vs. T_j

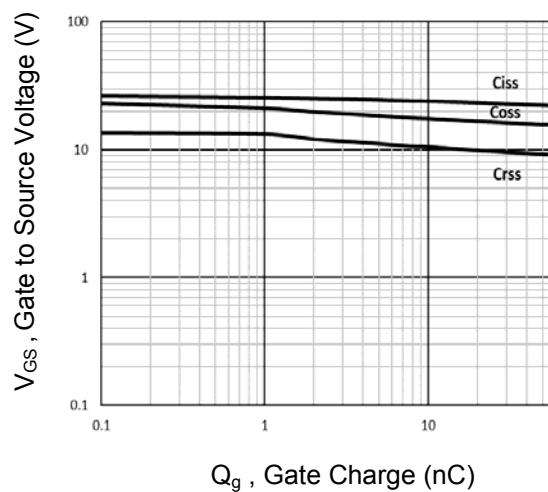


Fig.4 Gate Charge Waveform

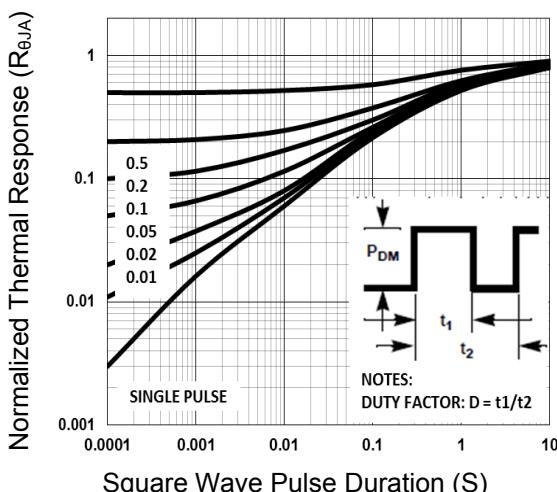


Fig.5 Normalized Transient Impedance

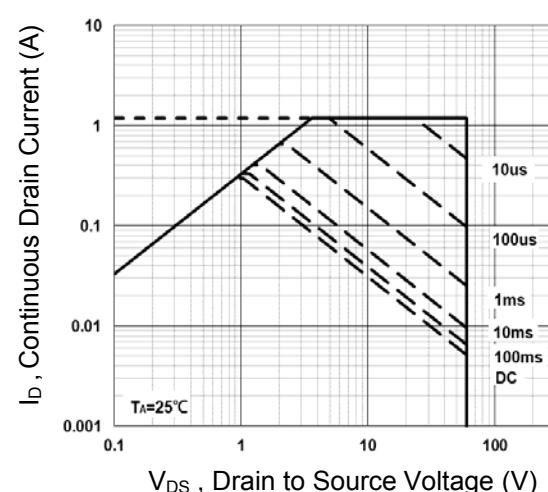
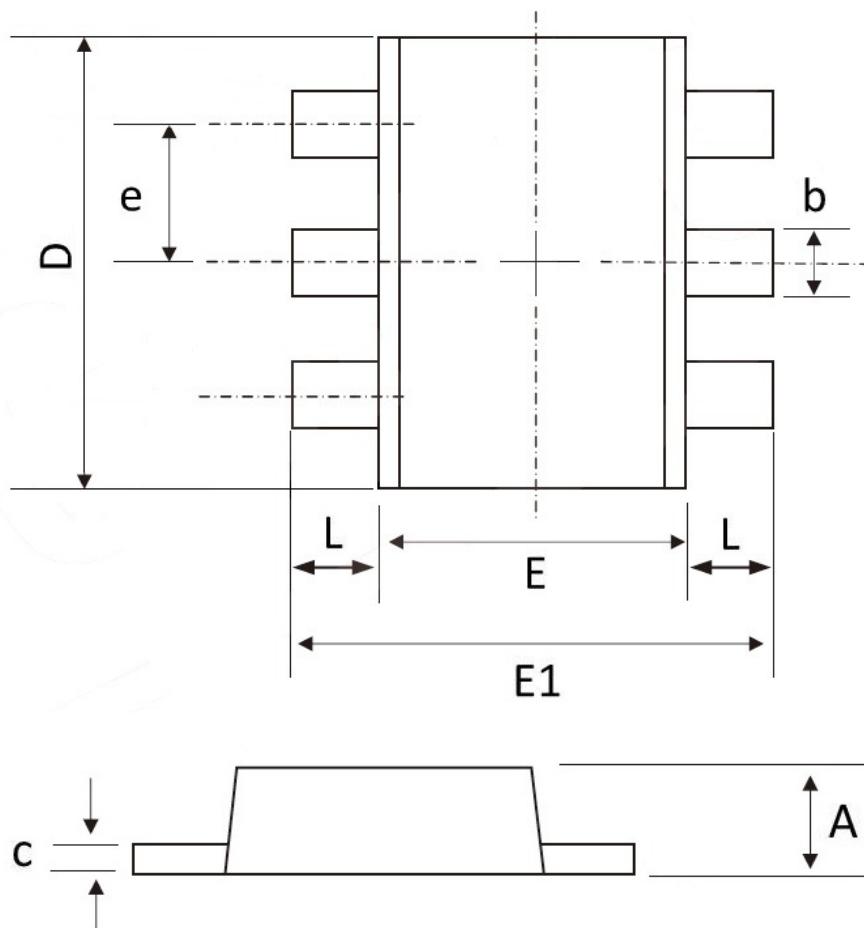


Fig.6 Maximum Safe Operation Area

Package Outline Dimensions

SOT-563



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MAX	MIN	MAX	MIN
A	0.600	0.500	0.024	0.020
b	0.300	0.150	0.012	0.006
c	0.180	0.100	0.007	0.004
D	1.700	1.500	0.067	0.059
E	1.250	1.100	0.049	0.043
E1	1.700	1.550	0.067	0.061
e	0.5BSC		0.02BSC	
L	0.300	0.100	0.012	0.004