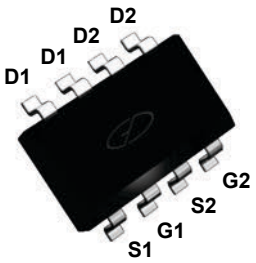
GOOD-ARK SEMICONDUCTOR

GSFQ4953

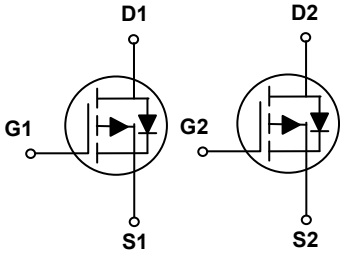
30V Dual P-Channel MOSFET

Main Product Characteristics

$V_{(BR)DSS}$	-30V
$R_{DS(ON)}$	58mΩ
I_D	-5.4A



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 GSFQ4953 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 supplies and a wide variety of other applications.

Absolute Maximum Ratings (T_A=25°C unless otherwise specified)

Parameter	Symbol	Max.	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate-to-Source Voltage	V_{GS}	±20	V
Continuous Drain Current, @ Steady-State (T_A=150°C)[1]	I_D	-5.4	A
Pulsed Drain Current[2]	I_{DM}	-20	A
Power Dissipation	P_D	2	W
Junction-to-Ambient (PCB Mounted, Steady-State)[3]	$R_{\theta JA}$	50	°C/W
Operating Junction and Storage Temperature Range	T_J/T_{STG}	-55 to +150	°C

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

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
On / Off Characteristics						
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=-250μA	-30	-	-	V
Drain-to-Source Leakage Current	I_{DSS}	V_{DS}=-24V, V_{GS}=0V	-	-	-1	μA
Gate-to-Source Forward Leakage	I_{GSS}	V_{GS}=20V	-	-	100	nA
		V_{GS}=-20V	-	-	-100	
Static Drain-to-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=-10V, I_D=-5.3A	-	44	58	mΩ
		V_{GS}=-4.5V, I_D=-4A		54	85	
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=-250μA	-1.1	-1.6	-2.5	V
Forward Transconductance	gfs	V_{DS}=-10V, I_D=-5A	-	11	-	S
Dynamic and Switching Characteristic						
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=-15V F=1MHz	-	514	-	pF
Output Capacitance	C_{oss}		-	72	-	
Reverse Transfer Capacitance	C_{rss}		-	61	-	
Total Gate Charge	Q_g	I_D=-3.6A, V_{DS}=-15V, V_{GS}=-10V	-	13	-	nC
Gate-to-Source Charge	Q_{gs}		-	2.4	-	
Gate-to-Drain ("Miller") Charge	Q_{gd}		-	1.8	-	
Turn-on Delay Time	$t_{d(on)}$	V_{GS}=-10V, V_{DS}=-15V, R_L=5Ω, R_{GEN}=6Ω, I_D=-3A	-	8.1	-	nS
Rise Time	t_r		-	3.5	-	
Turn-Off Delay Time	$t_{d(off)}$		-	29.5	-	
Fall Time	t_f		-	6.2	--	
Source-Drain Ratings and Characteristics						
Diode Forward Voltage	V_{SD}	I_S=-1.7A, V_{GS}=0V	-	-	-1.3	V

Notes:

1. Pulse test: Pulse width ≤ 300us, duty cycle ≤ 2%.
2. Repetitive rating; pulse width limited by max. junction temperature.
3. Device mounted on FR-4 PCB, 1inch x 0.85inch x 0.062inch.

Typical Electrical and Thermal Characteristic Curves

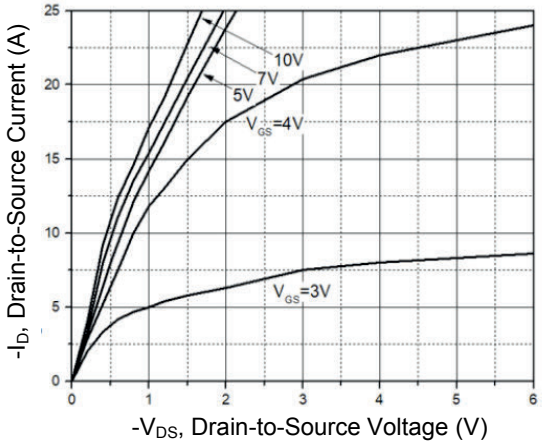


Figure 1. Output Characteristics

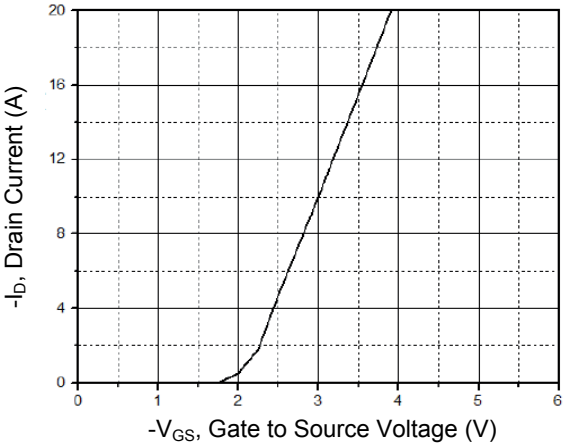


Figure 2. Transfer Characteristics

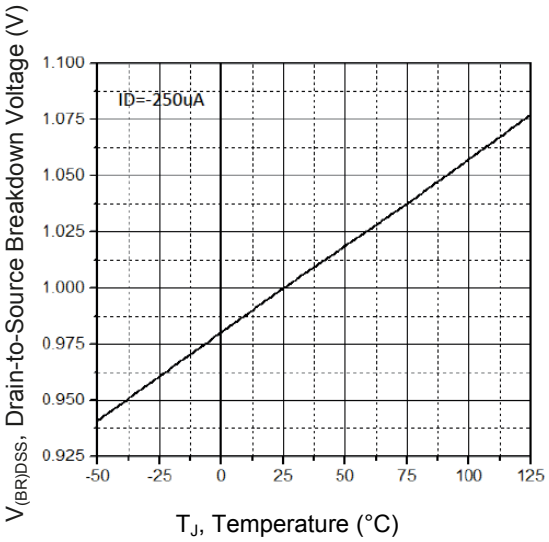


Figure 3. Breakdown Voltage Variation with Temperature

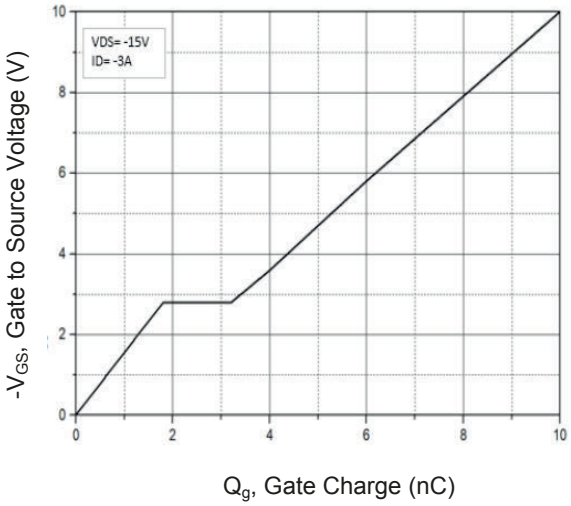


Figure 4. Gate Charge

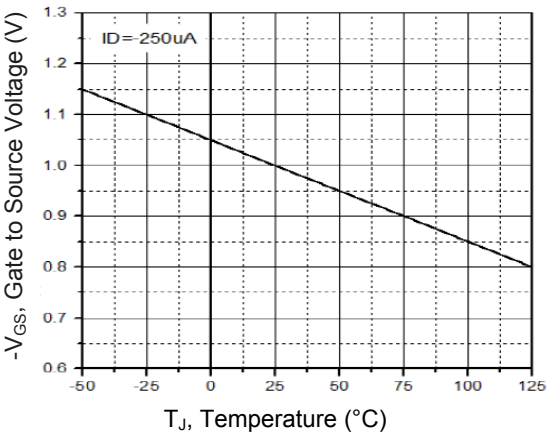


Figure 5. Normalized $V_{GS(th)}$ vs. T_J

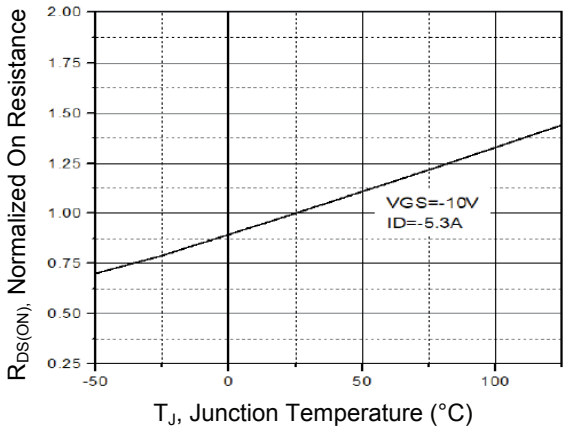


Figure 6. Normalized $R_{DS(ON)}$ vs. T_J

Typical Electrical and Thermal Characteristic Curves

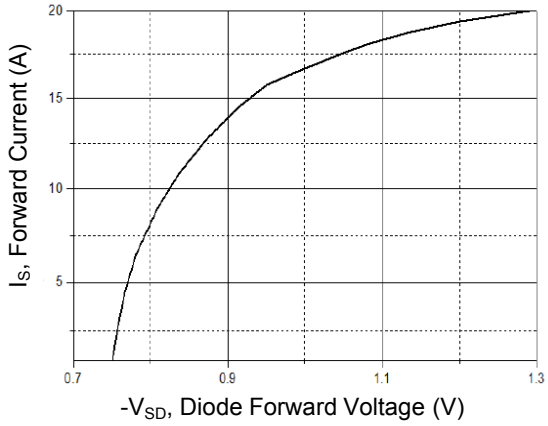


Figure 7. Body Diode Characteristics

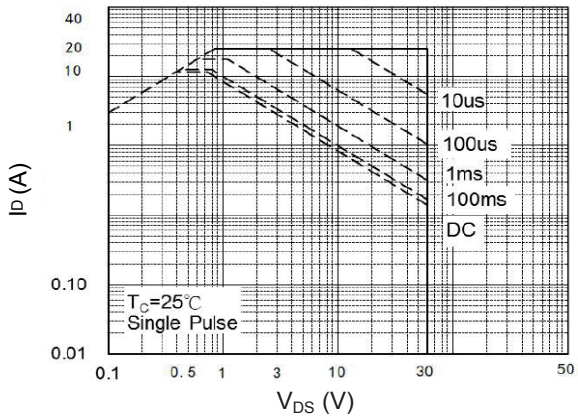
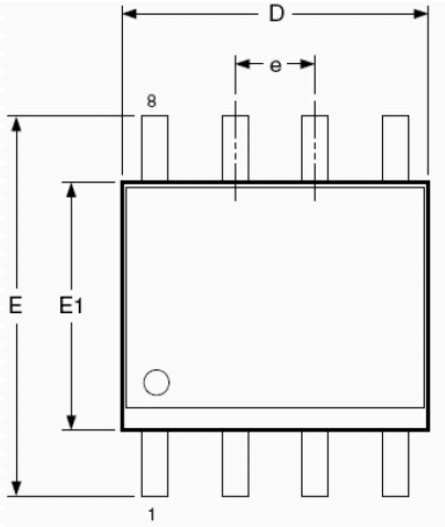
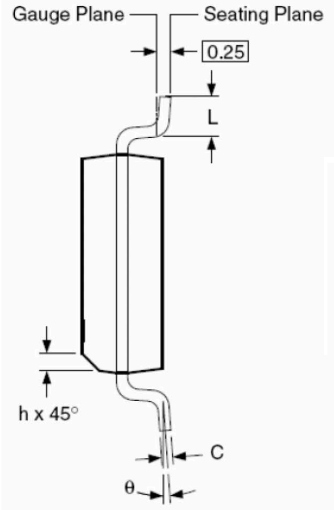
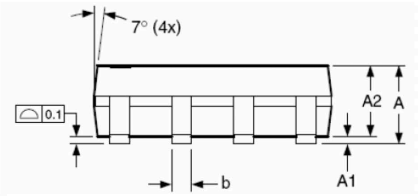


Figure 8. Safe Operation Area

Package Outline Dimensions (SOP-8)







Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.250	1.650	0.049	0.065
b	0.310	0.510	0.012	0.020
c	0.170	0.250	0.007	0.010
D	4.800	5.000	0.189	0.197
E1	3.800	4.000	0.150	0.157
e	1.270 BSC		0.050 BSC	
E	5.800	6.200	0.228	0.244
h	0.250	0.500	0.010	0.020
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°