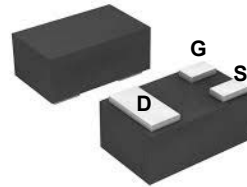
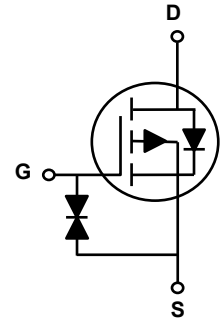


Main Product Characteristics

$V_{(BR)DSS}$	-30V
$R_{DS(ON)}$	1.6Ω (Max.)
I_D	-0.4A



SOT-883



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 GSF3041K 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 ($T_A=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Max.	Unit
Drain-Source Voltage	V_{DSS}	-30	V
Gate-Source Voltage	V_{GSS}	±10	V
Drain Current-Continuous ($T_A=25^\circ\text{C}$) ^{1,3}	I_D	-0.4	A
Drain Current-Continuous ($T_A=70^\circ\text{C}$) ^{1,3}		-0.31	
Drain Current-Pulsed ²	I_{DM}	-1.6	A
Diode Continuous Forward Current	I_S	-0.4	A
Power Dissipation ($T_A=25^\circ\text{C}$)	P_D	175	mW
Thermal Resistance, Junction-to-Ambient ²	$R_{\theta JA}$	260	°C/W
Storage Temperature Range	T_{STG}	-55 To +150	°C
Operating Junction Temperature Range	T_J	-55 To +150	°C

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

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-30	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-30V, V_{GS}=0V$	-	-	-1	μA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_{DS}=250\mu A$	-0.6	-	-1.3	V
Gate-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 8V, V_{DS}=0V$	-	-	± 10	μA
Drain-Source On-State Resistance	$R_{DS(on)}$	$V_{GS}=-4.5V, I_D=-0.3A$	-	1.22	1.6	Ω
		$V_{GS}=-2.5V, I_D=-0.2A$	-	1.8	2.4	
		$V_{GS}=-1.8V, I_D=-0.1A$	-	2.05	3.4	
Total Gate Charge	Q_g	$V_{DS}=-15V, I_D=-0.3A, V_{GS}=-4.5V$	-	2	-	nC
Gate-Source Charge	Q_{gs}		-	1.3	-	
Gate-Drain Charge	Q_{gd}		-	0.5	-	
Turn-On Delay Time	$t_{d(on)}$	$V_{DS}=-15V, R_{GEN}=6\Omega, V_{GS}=-4.5V, I_D=-0.3A$	-	7.4	-	nS
Turn-On Rise Time	t_r		-	21	-	
Turn-Off Delay Time	$t_{d(off)}$		-	46	-	
Turn-Off Fall Time	t_f		-	15	-	
Input Capacitance	C_{iss}	$V_{DS}=-15V, V_{GS}=0V, F=1MHz$	-	74	-	pF
Output Capacitance	C_{oss}		-	19	-	
Reverse Transfer Capacitance	C_{rss}		-	12	-	
Reverse Diode Characteristics						
Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_{SD}=0.3A$	-	-	-1.2	V
Continuous Source Current	I_S	$V_G=V_D=0V, \text{Force Current}$	-	-	-0.4	A
Pulsed Source Current	I_{SM}		-	-	-0.8	

Notes:

1. The value of $R_{\theta JA}$ is measured with the device mounted on 1in² FR-4 board with 2oz. copper, in a still air environment with $T_A=25^{\circ}\text{C}$. The value in any given application depends on the user's specific board design.
2. Repetitive rating, pulse width limited by junction temperature.
3. The current rating is based on the $t < 10s$ junction to ambient thermal resistance rating.

Typical Electrical and Thermal Characteristic Curves

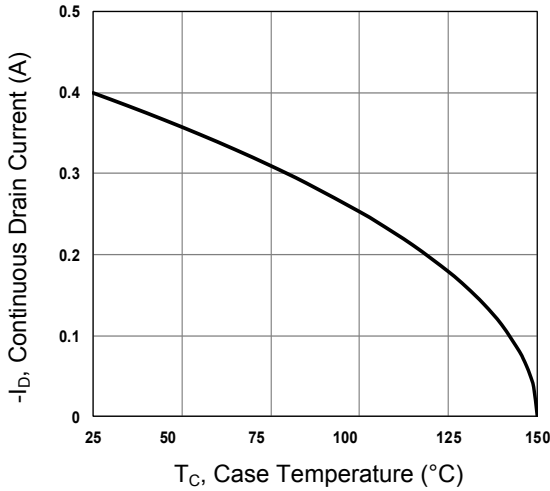


Figure 1. Continuous Drain Current vs. T_C

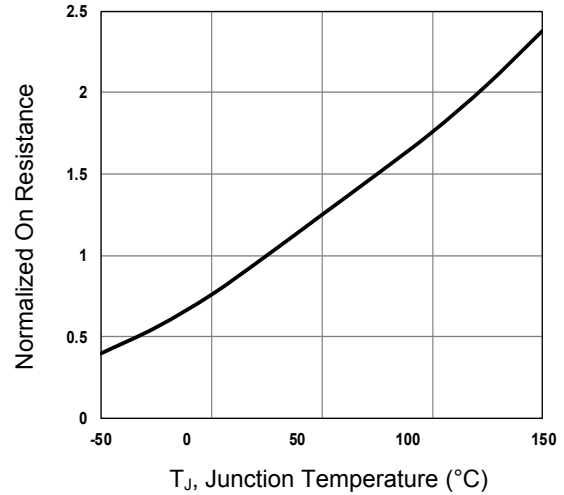


Figure 2. Normalized R_{DSON} vs. T_J

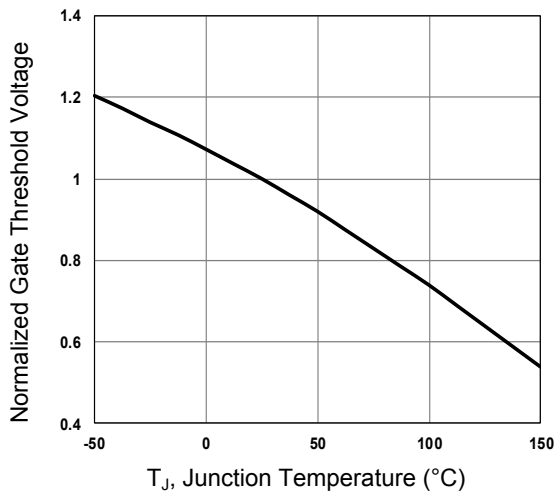


Figure 3. Normalized V_{th} vs. T_J

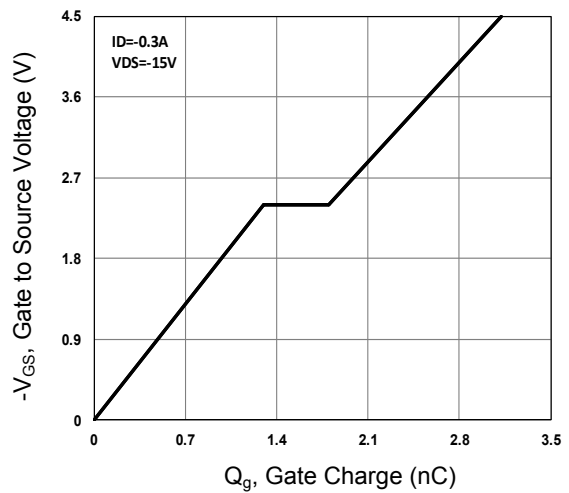


Figure 4. Gate Charge Waveform

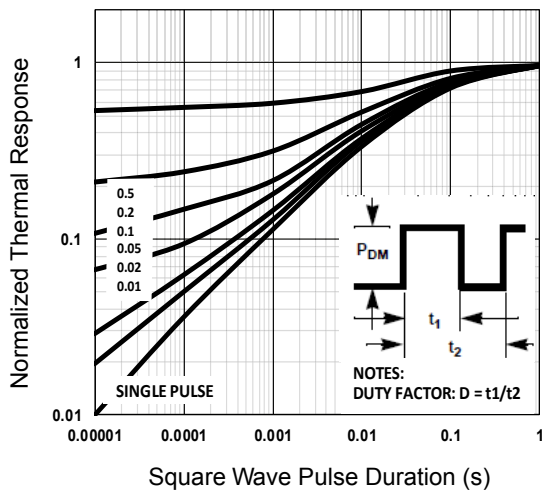


Figure 5. Normalized Transient Impedance

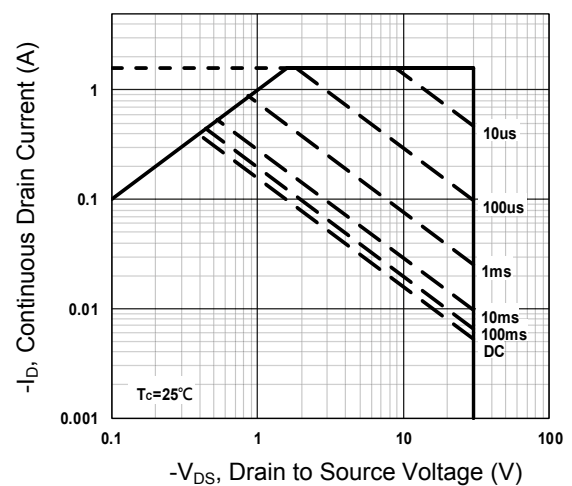
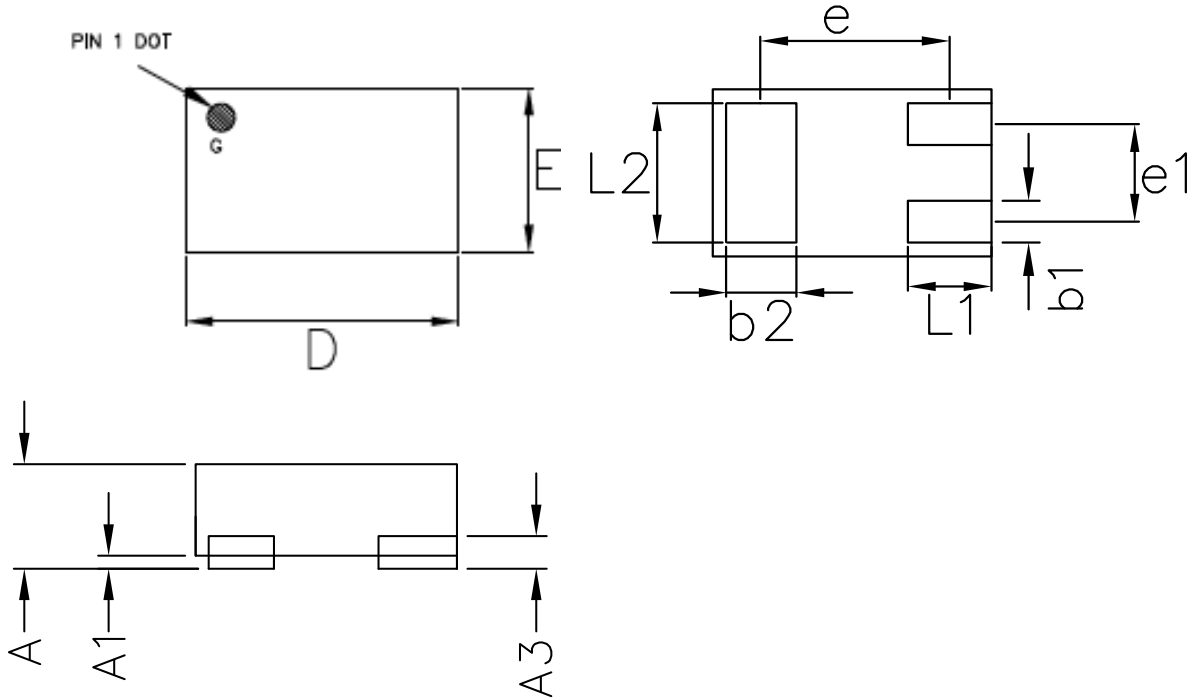


Figure 6. Maximum Safe Operation Area

Package Outline Dimensions (SOT-883)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.400	0.500	0.016	0.020
A1	0.001	0.050	0.000	0.002
A3	0.125 REF		0.005 REF	
D	0.950	1.050	0.037	0.041
E	0.550	0.650	0.022	0.026
b1	0.100	0.200	0.004	0.008
b2	0.200	0.300	0.008	0.012
L1	0.200	0.400	0.008	0.016
L2	0.400	0.600	0.016	0.024
e1	0.350 BSC		0.014 BSC	
e	0.675 BSC		0.027 BSC	

Order Information

Device	Package	Marking	Packaging	SPQ
GSFW3041K	SOT-883	AW	Tape & Reel	10,000 Pcs / Reel