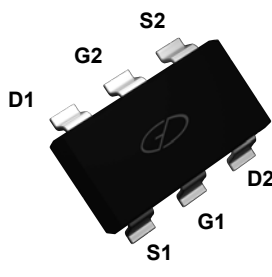
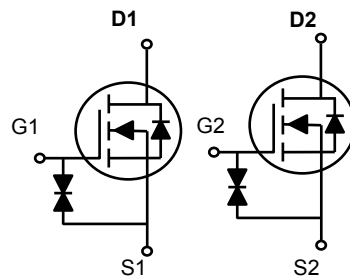


Main Product Characteristics

BV_{DSS}	60V
$R_{DS(ON)}$	1.3Ω @10V (Typ)
	1.6Ω @4.5V (Typ)
I_D	0.3A



SOT-363



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 GSFK06002 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_{DS}	50	V
Gate-Source Voltage	V_{GS}	±12	V
Drain Current-Continuous ($T_A=25^\circ\text{C}$)	I_D	0.3	A
Drain Current-Continuous ($T_A=70^\circ\text{C}$)		0.24	
Drain Current-Pulsed ($T_A=25^\circ\text{C}$) ¹	I_{DM}	0.8	A
Power Dissipation ($T_A=25^\circ\text{C}$)	P_D	0.9	W
Power Dissipation ($T_A=70^\circ\text{C}$)		0.6	
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	125	°C/W
Operating Junction Temperature Range	T_J	-55 To +150	°C
Storage Temperature Range	T_{STG}	-55 To +150	°C

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

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =250uA	60	-	-	V
Zero Gate Voltage Drain Current, T _A =25°C	I _{DSS}	V _{DS} =60V, V _{GS} =0V	-	-	1	uA
Zero Gate Voltage Drain Current, T _A =125°C		V _{DS} =48V, V _{GS} =0V	-	-	100	uA
Gate-Source Leakage Current	I _{GSS}	V _{GS} =±12V, V _{DS} =0V	-	-	±100	nA
On Characteristics						
Gate Threshold Voltage	V _{GS(th)}	V _{GS} =V _{DS} , I _D =250uA	0.6	1.0	1.4	V
Drain-Source On-State Resistance ²	R _{DS(ON)}	V _{GS} =10V, I _D =0.3A	-	1.3	2	Ω
		V _{GS} =4.5V, I _D =0.3A	-	1.6	3	Ω
		V _{GS} =3.3V, I _D =0.2A	-	2.2	4	Ω
Dynamic and Switching Characteristics						
Total Gate Charge	Q _g	V _{DS} =30V, V _{GS} =4.5V, I _D =0.15A	-	0.58	-	nC
Gate-Source Charge	Q _{gs}		-	0.12	-	
Gate-Drain Charge	Q _{gd}		-	0.21	-	
Turn-On Delay Time	T _{d(on)}	V _{DD} =30V, V _{GS} =10V, R _G =3.3Ω, I _D =0.15A	-	4.5	-	nS
Rise Time	T _r		-	3.1	-	
Turn-Off Delay Time	T _{d(off)}		-	15	-	
Fall Time	T _f		-	3.3	-	
Input Capacitance	C _{iss}	V _{DS} =30V, V _{GS} =0V, F=1MHz	-	12	-	pF
Output Capacitance	C _{oss}		-	3.2	-	
Reverse Transfer Capacitance	C _{rss}		-	0.8	-	
Drain-Source Diode Characteristics and Maximum Ratings						
Source Drain Current (Body Diode)	I _{SD}	T _A =25°C	-	-	0.2	A
Diode Forward Voltage ²	V _{SD}	V _{GS} =0V, I _{SD} =0.2A, T _J =25°C	-	0.87	1.2	V

Note:

1. Repetitive rating: Pulsed width limited by maximum junction temperature.
2. Pulse test: pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.

Typical Electrical and Thermal Characteristic Curves

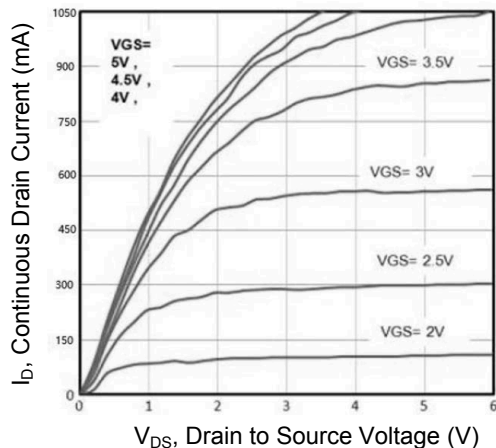


Figure 1. Typical Output Characteristics

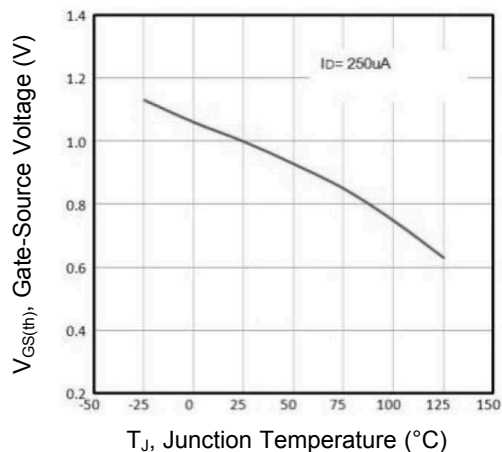


Figure 2. Normalized Threshold Voltage vs. Temperature

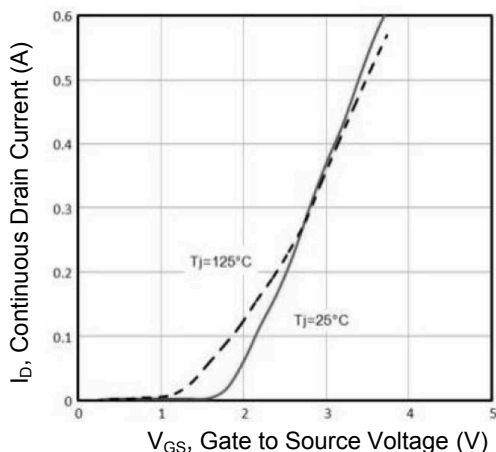


Figure 3. Typical Transfer Characteristics

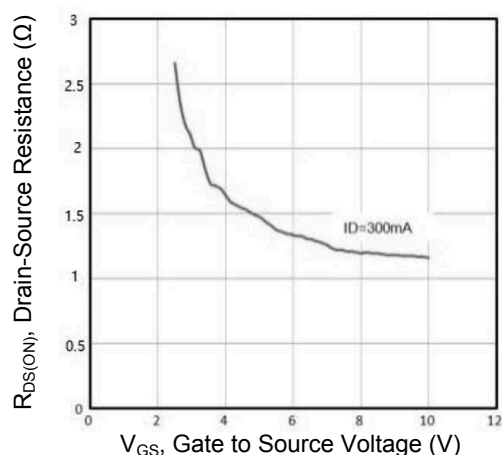


Figure 4. $R_{DS(on)}$ vs. Gate-Source Voltage

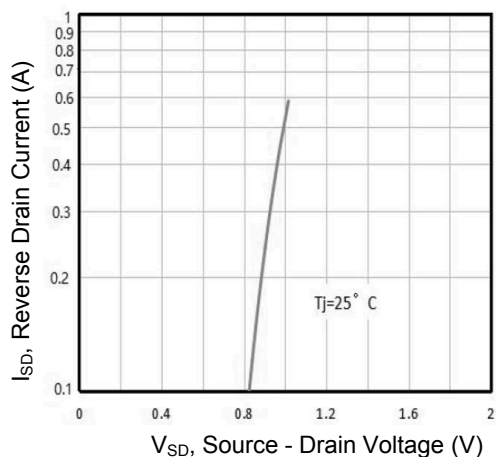


Figure 5. Typical Source - Drain Diode Forward Voltage

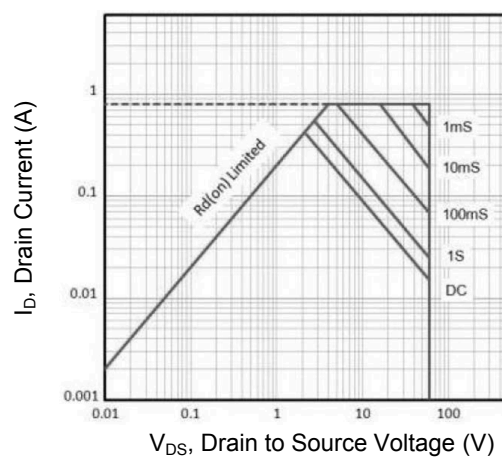


Figure 6. Maximum Safe Operating Area

Typical Electrical and Thermal Characteristic Curves

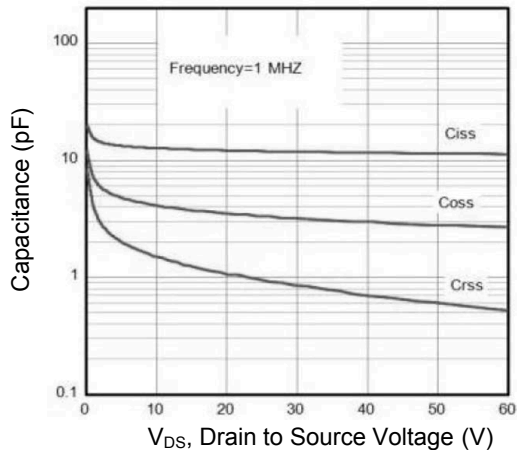


Figure 7. Capacitance Characteristics

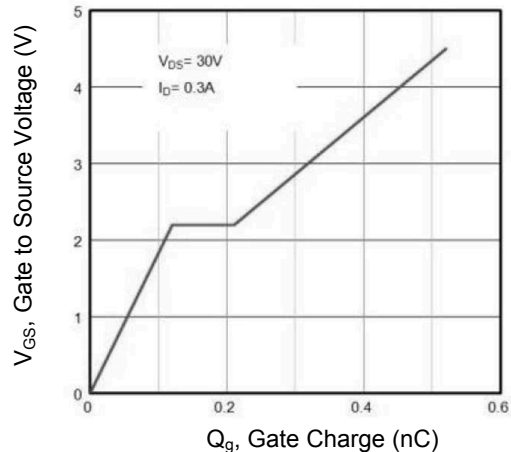


Figure 8. Gate Charge Characteristics

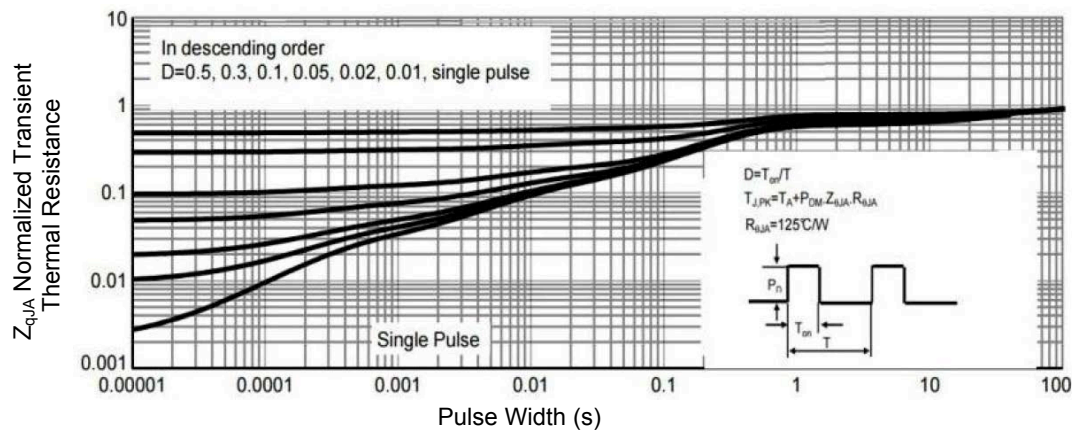


Figure 9. Normalized Maximum Transient Thermal Impedance

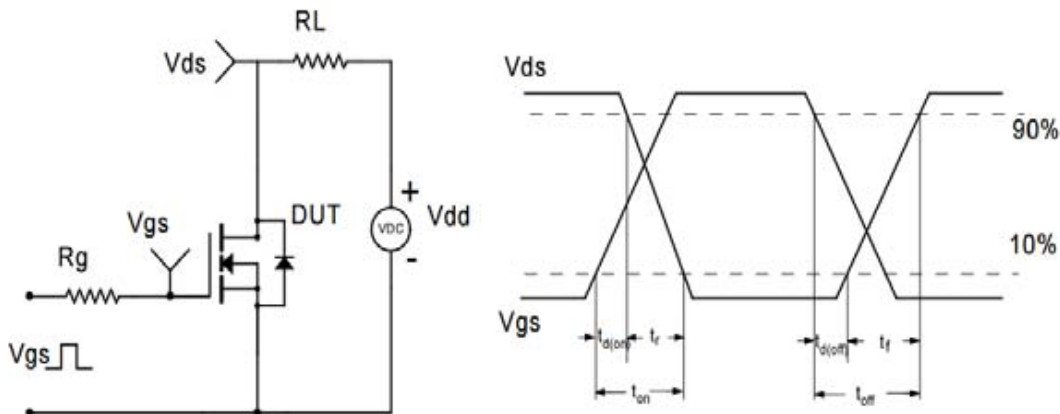
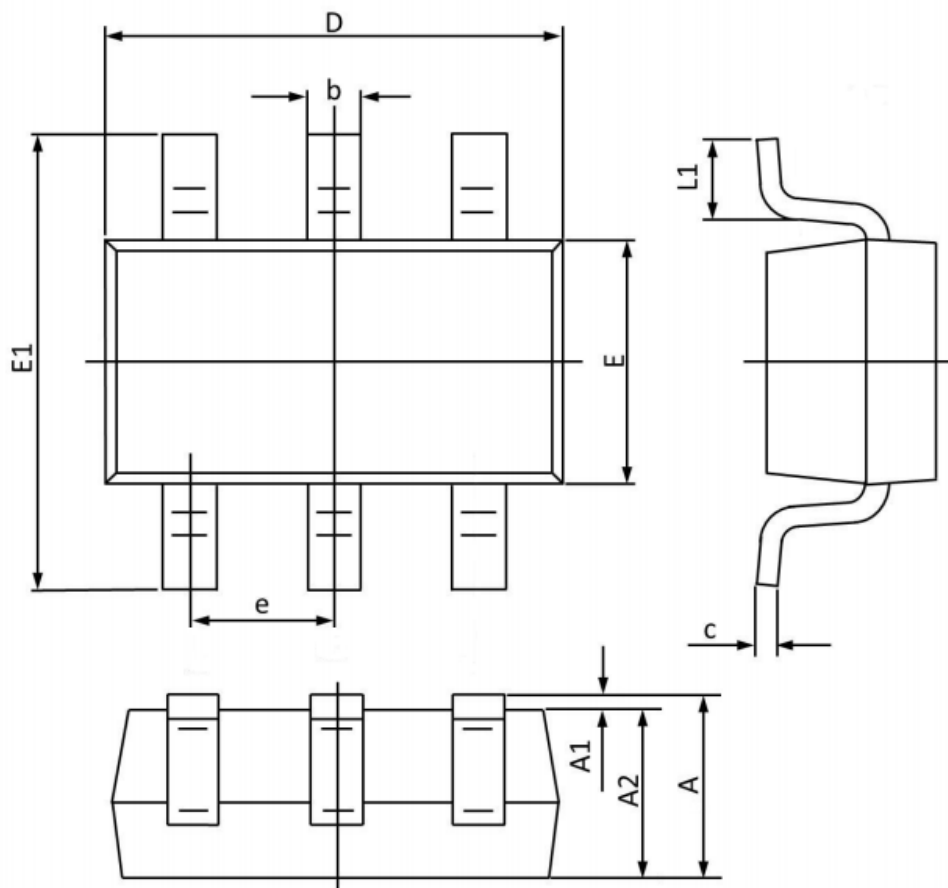


Figure 10. Switching Time Test Circuit and Waveforms

Package Outline Dimensions SOT-363



Symbol	Dimensions in Millimeters		Dimensions in Inches	
	Min	Max	Min	Max
A	0.800	1.100	0.031	0.043
A1	0.000	0.100	0.000	0.004
A2	0.800	1.000	0.031	0.039
b	0.100	0.330	0.004	0.013
c	0.100	0.250	0.004	0.010
D	1.800	2.200	0.071	0.087
E	1.150	1.350	0.045	0.053
E1	1.800	2.400	0.071	0.094
e	0.65 BSC		0.026 BSC	
L1	0.100	0.350	0.004	0.014