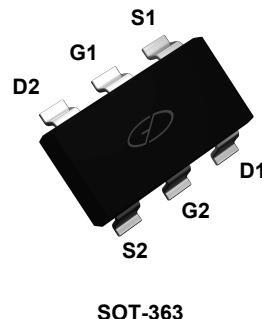
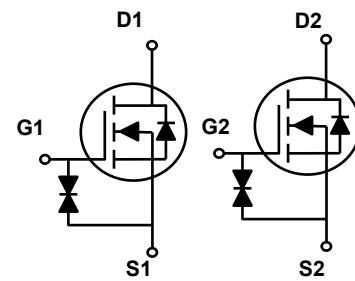


Main Product Characteristics

V_{DS}	60V
$R_{DS(ON)}$	2Ω
I_D	0.3A



SOT-363



Schematic Diagram

Features and Benefits

- Advanced MOSFET process technology
- Ideal for high efficiency switch mode power supplies
- Low on-resistance with low gate charge
- Fast switching and reverse body recovery



Description

The GSFK0602 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 ($T_A=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Max.	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current-Continuous ^{1,3}	I_D	0.3	A
Drain Current-Pulsed ²	I_{DM}	0.8	A
Power Dissipation ¹	P_D	0.8	W
Thermal Resistance, Junction to Ambient ¹	$R_{\theta JA}$	156	°C/W
Operating Junction Temperature Range	T_J	-55 To +150	°C
Storage Temperature Range	T_{STG}	-55 To +150	°C

Electrical Characteristics ($T_A=25^\circ C$ unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
On/Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	60	-	-	V
Drain-Source Leakage Current	I_{DS}	$V_{DS}=48V, V_{GS}=0V,$	-	-	1	μA
Gate-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 10	μA
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=0.25A$	-	-	2	Ω
		$V_{GS}=4.5V, I_D=0.25A$	-	-	3	
Gate Threshold Voltage	$V_{GS(th)}$	$V_{GS}=V_{DS}, I_D=250\mu A$	1.1	-	2.1	V
Dynamic and Switching Characteristics						
Total Gate Charge	Q_g	$V_{DD}=30V, I_D=0.3A V_{GS}=10V$	-	0.65	-	nC
Gate-Source Charge	Q_{gs}		-	0.12	-	
Gate-Drain Charge	Q_{gd}		-	0.21	-	
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=30V, R_G=3.3\Omega$ $V_{GS}=10V, I_D=0.3A$	-	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						
Continuous Source Current	I_s	$V_G=V_D=0V$, Force Current	-	-	0.2	A
Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_{SD}=0.2A,$	-	-	1.2	V

Note:

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

Typical Electrical and Thermal Characteristic Curves

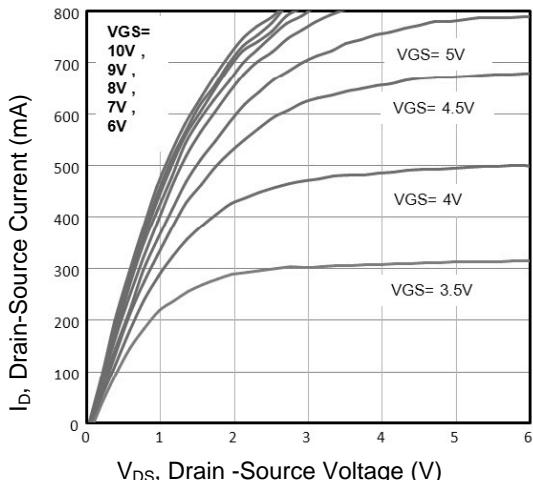


Figure 1. Typical Output Characteristics

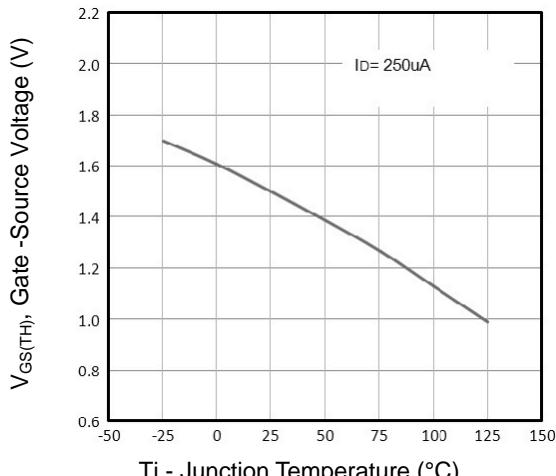


Figure 2. Normalized Threshold Voltage Vs. Temperature

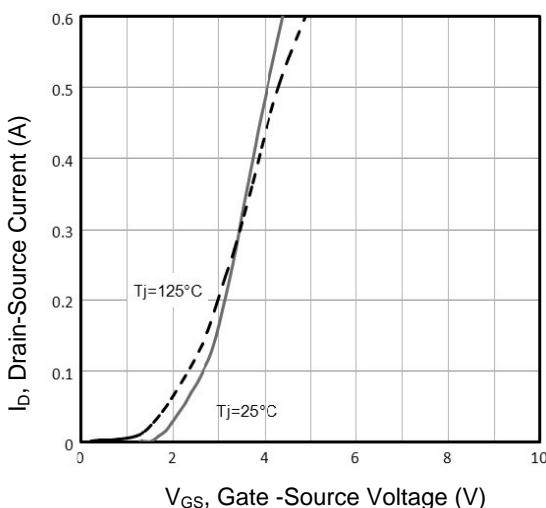


Figure 3. Typical Transfer Characteristics

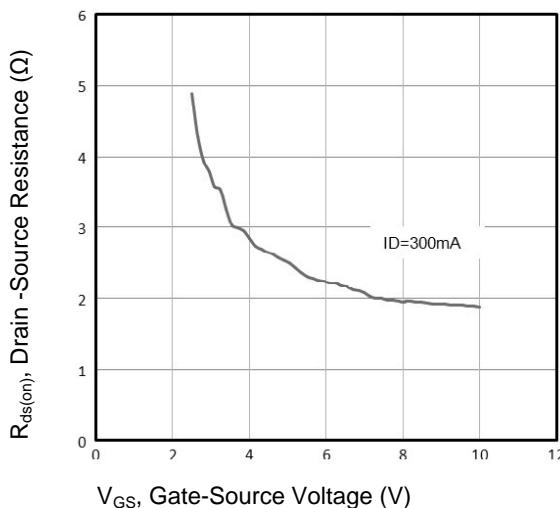


Figure 4. $R_{ds(on)}$ vs Gate-Source Voltage

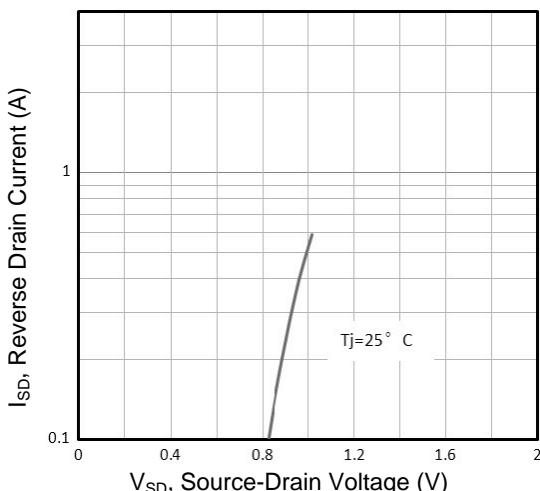


Figure 5. Typical Source-Drain Diode Forward Voltage

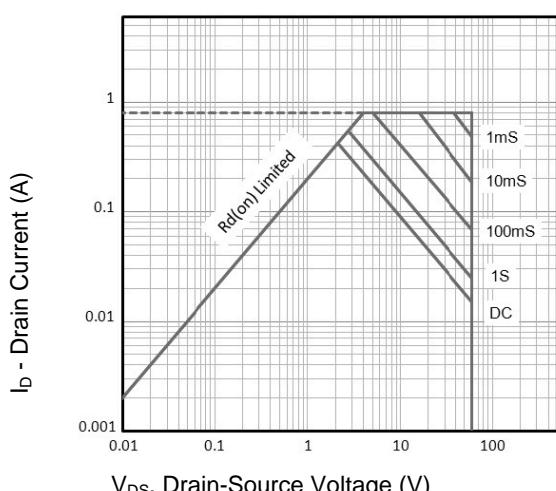


Figure 6. Maximum Safe Operating Area

Typical Electrical and Thermal Characteristic Curves

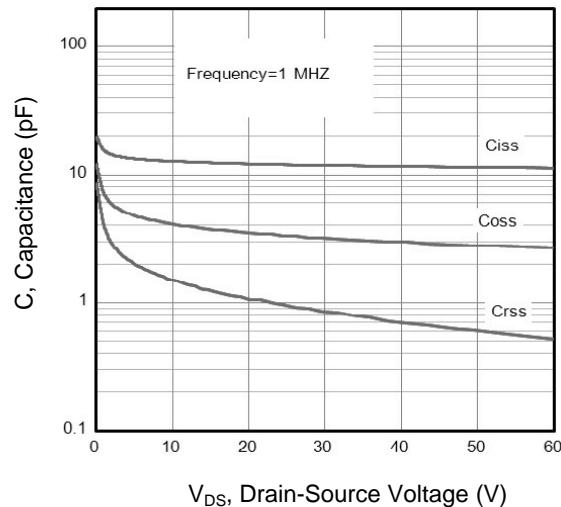


Figure 7. Typical Capacitance Vs. Drain-Source Voltage

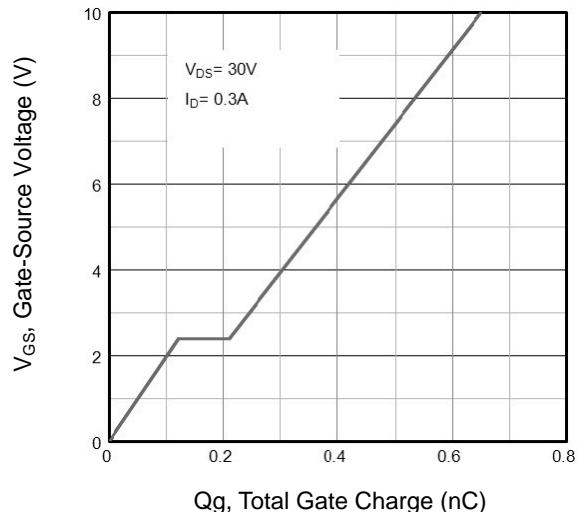


Figure 8. Typical Gate Charge Vs. Gate-Source Voltage

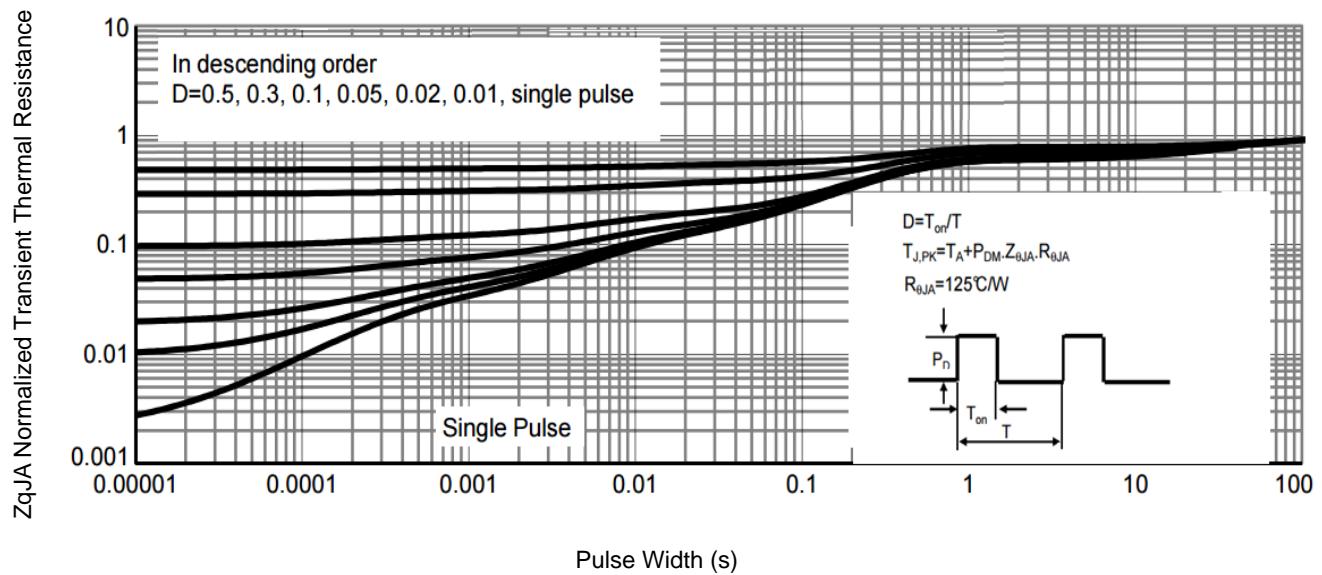
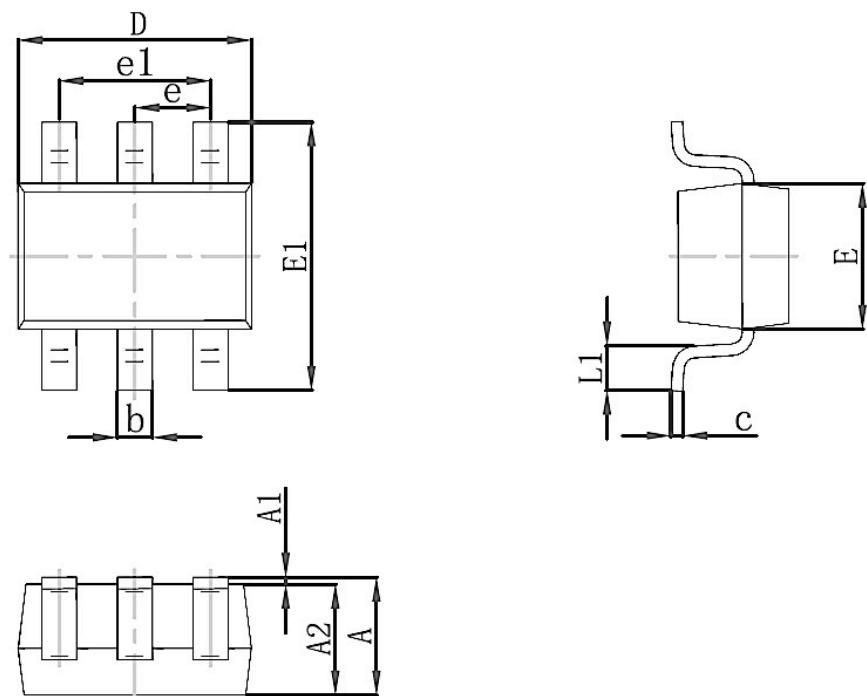


Figure 9. Normalized Maximum Transient Thermal Impedance

Package Outline Dimensions SOT-363



Symbol	Dimensions In Millimeters	
	Min	Max
A	0.900	1.100
A1	0.000	0.100
A2	0.900	1.000
b	0.100	0.300
c	0.100	0.250
D	1.800	2.200
E	1.150	1.350
E1	2.000	2.200
e	0.650 TYP	
e1	1.300 TYP	
L1	0.150	0.400