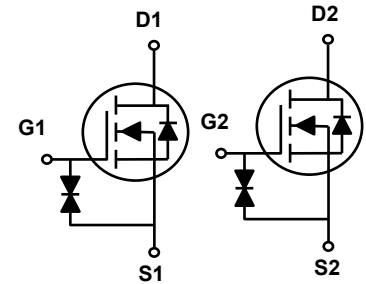
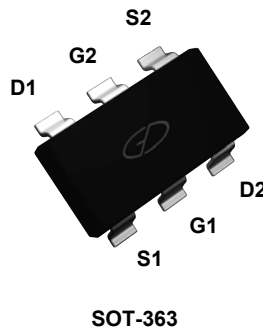


Main Product Characteristics

V_{DS}	30V
$R_{DS(ON)}$	350m Ω
I_D	1A



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 GSFK0302 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	Value	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current-Continuous ($T_A=25^{\circ}\text{C}$)	I_D	1	A
Drain Current-Continuous ($T_A=70^{\circ}\text{C}$)		0.8	A
Drain Current-Pulsed ¹	I_{DM}	4	A
Power Dissipation ($T_A=25^{\circ}\text{C}$)	P_D	420	mW
Power Dissipation-Derate Above 25 $^{\circ}\text{C}$		3.4	mW/ $^{\circ}\text{C}$
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	300	$^{\circ}\text{C}/\text{W}$
Storage Temperature Range	T_{STG}	-55 To +150	$^{\circ}\text{C}$
Operating Junction Temperature Range	T_J	-55 To +150	$^{\circ}\text{C}$

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

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	30	-	-	V
Drain-Source Leakage Current	I_{DSS}	$V_{DS}=24V, V_{GS}=0V, T_J=25^{\circ}\text{C}$	-	-	1	μA
		$V_{DS}=24V, V_{GS}=0V, T_J=85^{\circ}\text{C}$	-	-	10	μA
Gate-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 20	μA
On Characteristics						
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=0.5A$	-	275	350	m Ω
		$V_{GS}=4.5V, I_D=0.4A$	-	420	580	
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1.2	1.6	2.5	V
Dynamic and Switching Characteristics						
Total Gate Charge ^{2,3}	Q_g	$V_{DS}=15V, I_D=0.5A, V_{GS}=10V$	-	3	-	nC
Gate-Source Charge ^{2,3}	Q_{gs}		-	1.5	-	
Gate-Drain Charge ^{2,3}	Q_{gd}		-	0.6	-	
Turn-On Delay Time ^{2,3}	$t_{d(on)}$	$V_{DD}=15V, I_D=0.5A, V_{GS}=10V, R_G=6\Omega$	-	4	-	nS
Rise Time ^{2,3}	t_r		-	7.5	-	
Turn-Off Delay Time ^{2,3}	$t_{d(off)}$		-	25	-	
Fall Time ^{2,3}	t_f		-	12	-	
Input Capacitance	C_{iss}	$V_{DS}=15V, V_{GS}=0V, F=1.0\text{MHz}$	-	35	-	pF
Output Capacitance	C_{oss}		-	22	-	
Reverse Transfer Capacitance	C_{rss}		-	10	-	
Drain-Source Diode Characteristics and Maximum Ratings						
Continuous Source Current	I_S	$V_G=V_D=0V,$ Force Current	-	-	1	A
Pulsed Source Current	I_{SM}		-	-	2	A
Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=0.1A, T_J=25^{\circ}\text{C}$	-	-	1	V

Note :

1. Repetitive Rating : Pulsed width limited by maximum junction temperature.
2. Pulse test: pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
3. Essentially independent of operating temperature.

Typical Electrical and Thermal Characteristic Curves

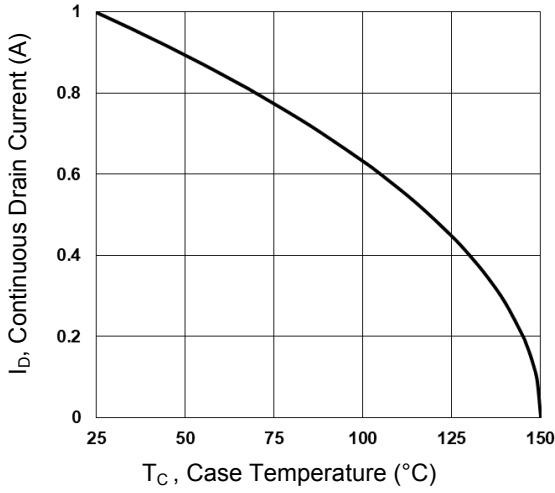


Figure 1. Continuous Drain Current vs. T_C

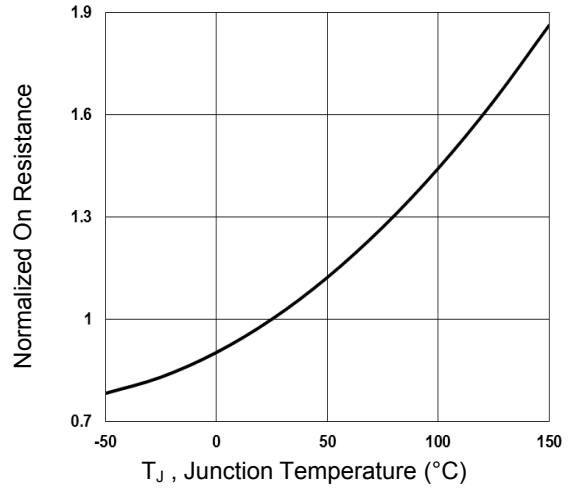


Figure 2. Normalized $R_{DS(ON)}$ vs. T_J

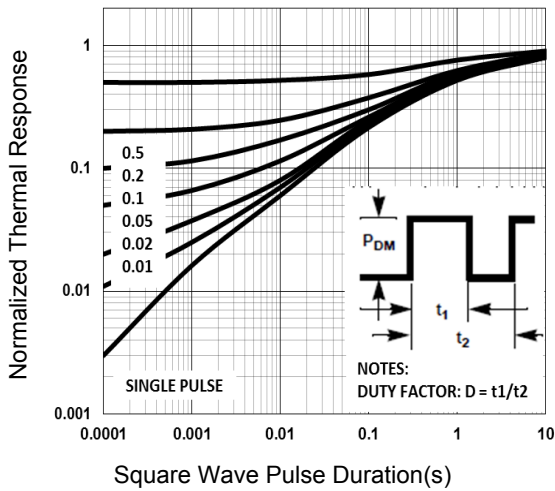


Figure 3. Normalized Transient Impedance

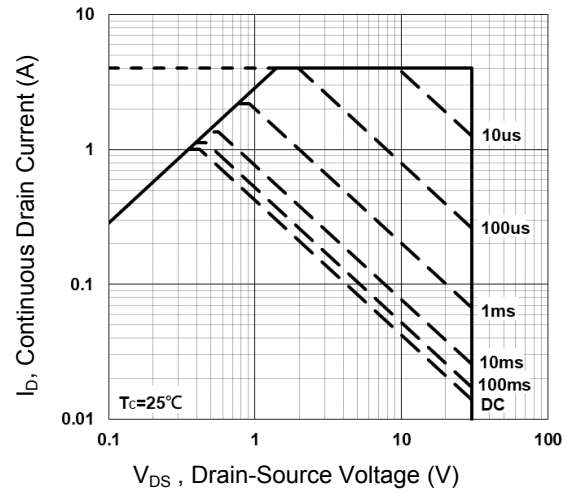
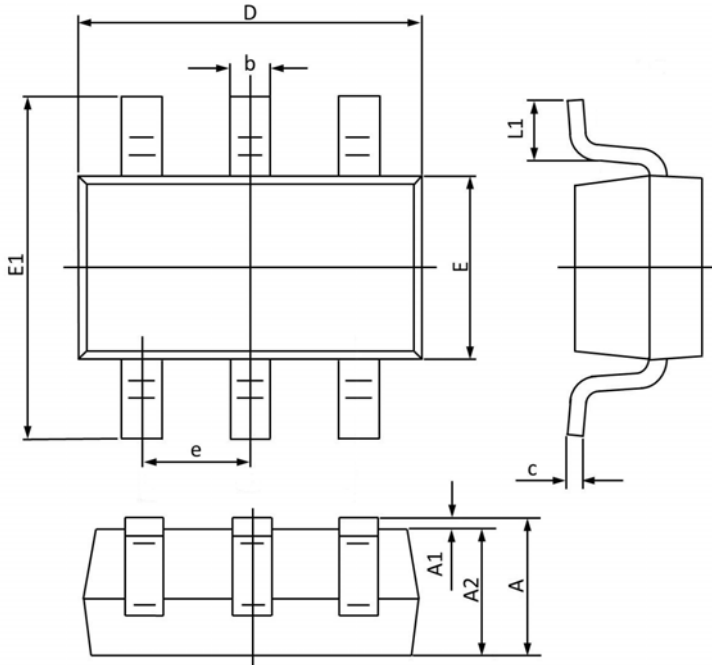


Figure 4. Maximum Safe Operation Area

Package Outline Dimensions (SOT-363)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MAX	MIN	MAX	MIN
A	1.100	0.800	0.043	0.031
A1	0.100	0.000	0.004	0.000
A2	1.000	0.800	0.039	0.031
b	0.330	0.100	0.013	0.004
c	0.250	0.100	0.010	0.004
D	2.200	1.800	0.087	0.071
E	1.350	1.150	0.053	0.045
E1	2.300	1.900	0.091	0.075
e	0.65BSC		0.026BSC	
L1	0.350	0.100	0.014	0.004