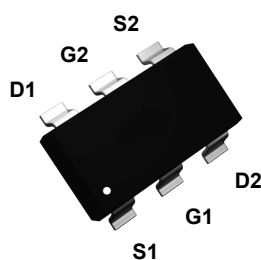
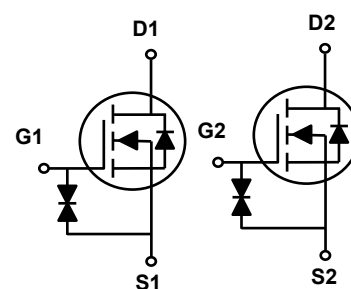


Main Product Characteristics

V_{DS}	30V
$R_{DS(ON)}$	450mΩ
I_D	800mA



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 GSFK0300 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}	± 12	V
Drain Current-Continuous ($T_C=25^{\circ}\text{C}$)	I_D	800	mA
Drain Current-Continuous ($T_C=100^{\circ}\text{C}$)		510	mA
Drain Current-Pulsed ¹	I_{DM}	3.2	A
Power Dissipation ($T_C=25^{\circ}\text{C}$)	P_D	275	mW
Power Dissipation-Derate Above 25°C		2.2	mW/ $^{\circ}\text{C}$
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	450	$^{\circ}\text{C/W}$
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 =250μA	30	-	-	V
BV _{DSS} Temperature Coefficient	△BV _{DSS} /△T _J	Reference to 25°C, I _D =1mA	-	-0.01	-	V/°C
Drain-Source Leakage Current	I _{DSS}	V _{DS} =30V, V _{GS} =0V,T _J =25°C	-	-	1	μA
		V _{DS} =24V, V _{GS} =0V,T _J =125°C	-	-	10	μA
Gate-Source Leakage Current	I _{GSS}	V _{GS} =±12V, V _{DS} =0V	-	-	±20	μA
On Characteristics						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	0.5	0.7	1.2	V
V _{GS(th)} Temperature Coefficient	△V _{GS(th)}		-	-1.74	-	mV/°C
Static Drain-Source On-Resistance	R _{DS(ON)}	V _{GS} =4.5V, I _D =0.3A	-	370	450	mΩ
		V _{GS} =2.5V, I _D =0.2A	-	510	650	
Forward Transconductance	g _{FS}	V _{DS} =4V, I _D =0.3A	-	0.8	-	S
Dynamic and Switching Characteristics						
Input Capacitance	C _{iss}	V _{DS} =15V, V _{GS} =0V, F=1.0MHz	-	72.9	146	PF
Output Capacitance	C _{oss}		-	18.3	36.6	
Reverse Transfer Capacitance	C _{rss}		-	7.4	14.8	
Turn-On Delay Time ^{2,3}	t _{d(on)}	V _{DD} =15V, I _D =0.3A V _{GS} =4.5V, R _G =10Ω	-	5.5	11	nS
Rise Time ^{2,3}	t _r		-	4	8	
Turn-Off Delay Time ^{2,3}	t _{d(off)}		-	14.5	29	
Fall Time ^{2,3}	t _f		-	6.5	13	
Total Gate Charge ^{2,3}	Q _g	V _{DS} =15V, I _D =0.3A, V _{GS} =4.5V	-	2.6	5.2	nC
Gate-Source Charge ^{2,3}	Q _{gs}		-	0.9	1.8	
Gate-Drain Charge ^{2,3}	Q _{gd}		-	0.6	1.2	
Drain-Source Diode Characteristics						
Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =0.3A, T _J =25°C	-	-	1	V
Continuous Source Current	I _S	V _G =V _D =0V, Force Current	-	-	0.78	A
Pulsed Source Current	I _{SM}		-	-	1.56	A

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

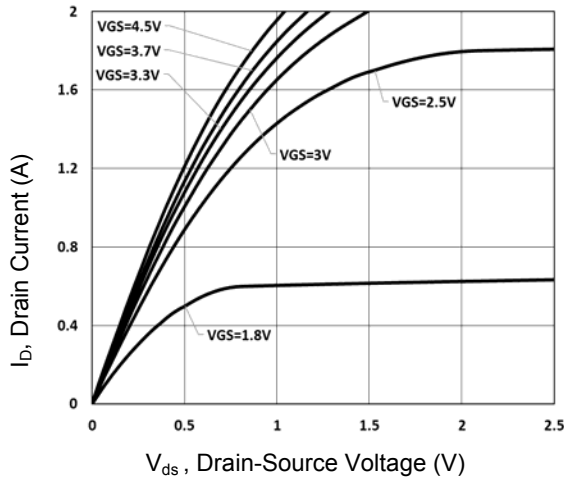


Figure 1. Typical Output Characteristics

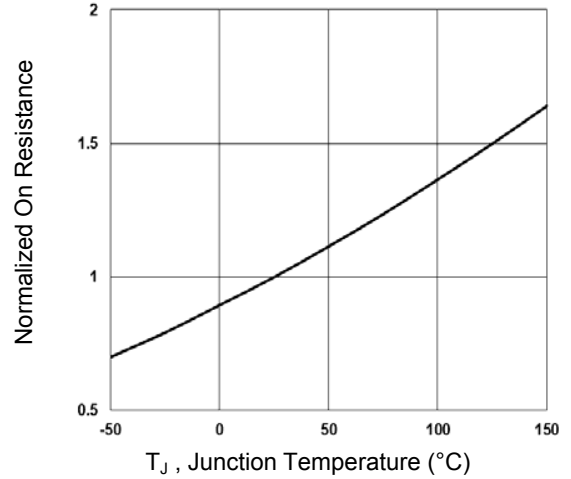


Figure 2. Normalized $R_{DS(ON)}$ vs. T_J

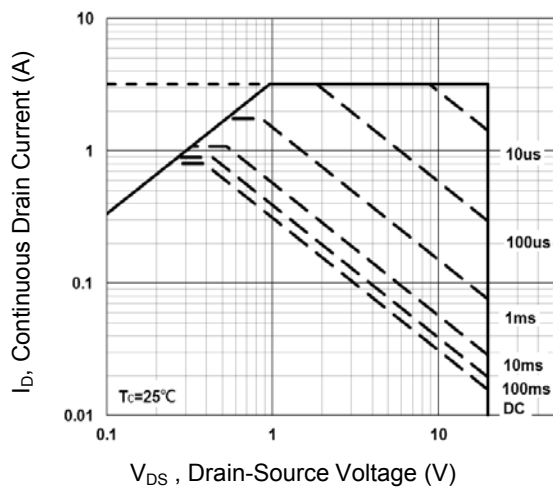


Figure 3. Maximum Safe Operation Area

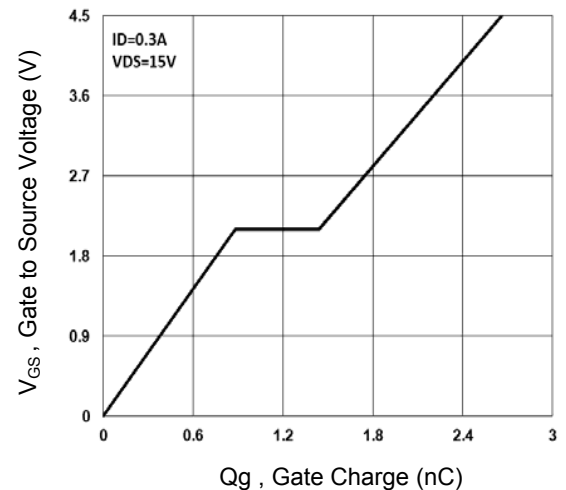


Figure 4. Gate Charge Waveform

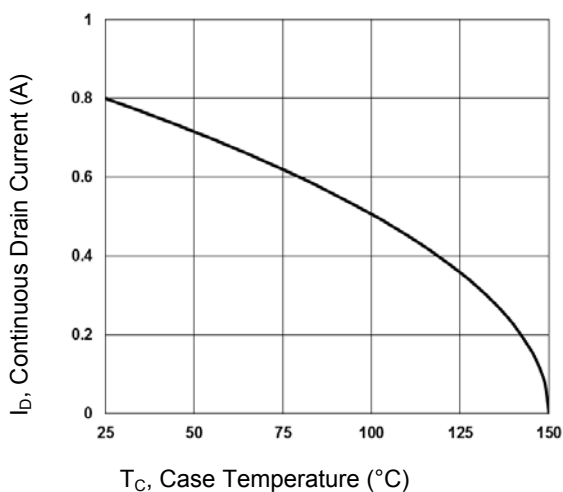


Figure 5. Continuous Drain Current vs. T_C

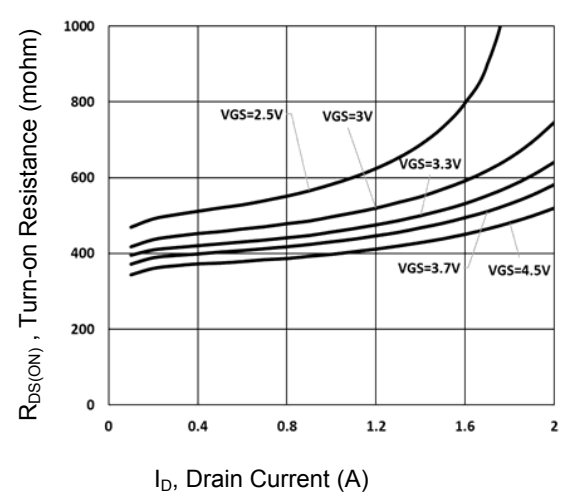


Figure 6. Turn-On Resistance vs. I_D

Typical Electrical and Thermal Characteristic Curves

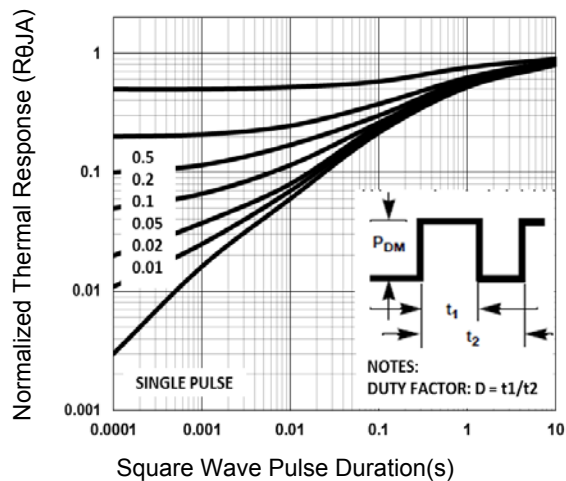


Figure 7. Normalized Transient Impedance

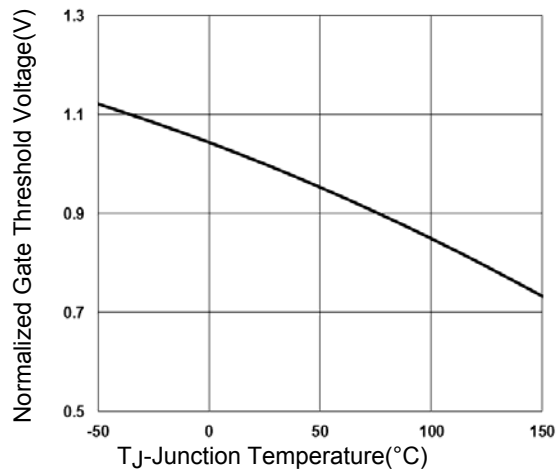
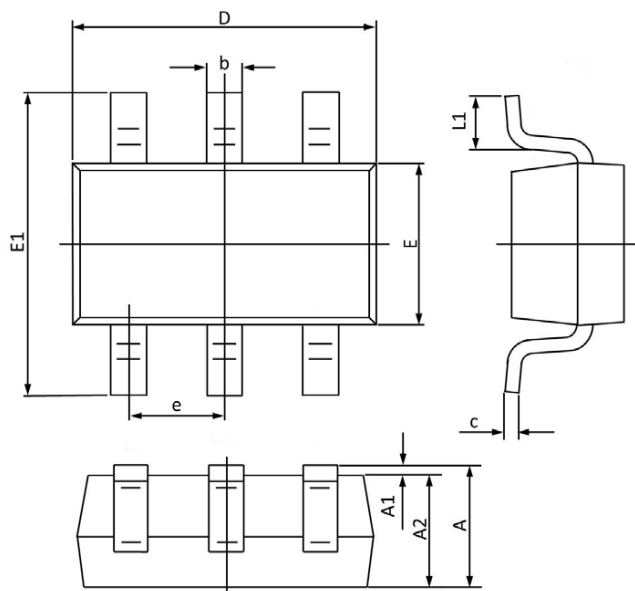


Figure 8. Normalized V_{th} VS T_J

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	2.400	1.800	0.094	0.071
e	0.65BSC		0.026BSC	
L1	0.350	0.100	0.014	0.004

Order Information

Device	Package	Marking Code	Carrier	Quantity	HSF Status
GSFK0300	SOT-363	U	Tape & Reel	3000/Reel	RoHS Compliant