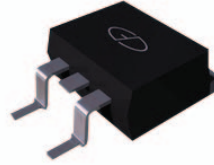
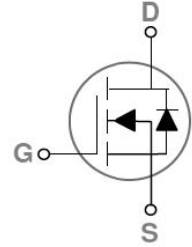


### Main Product Characteristics

$BV_{DSS}$	100V
$R_{DS(ON)}$	18m $\Omega$
$I_D$	60A



TO-263 (D<sup>2</sup>PAK)



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 GSFT1060 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	Max.	Unit
Drain-Source Voltage	$V_{DS}$	100	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Drain Current-Continuous ( $T_C=25^\circ\text{C}$ )	$I_D$	60	A
Drain Current-Continuous ( $T_C=100^\circ\text{C}$ )		38	A
Drain Current-Pulsed <sup>1</sup>	$I_{DM}$	180	A
Single Pulse Avalanche Energy <sup>2</sup>	$E_{AS}$	100	mJ
Single Pulse Avalanche Current <sup>2</sup>	$I_{AS}$	45	A
Power Dissipation ( $T_C=25^\circ\text{C}$ )	$P_D$	113	W
Power Dissipation-Derate Above 25 $^\circ\text{C}$		0.9	W/ $^\circ\text{C}$
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	62	$^\circ\text{C}/\text{W}$
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	1.1	$^\circ\text{C}/\text{W}$
Storage Temperature Range	$T_{STG}$	-50 To +150	$^\circ\text{C}$
Operating Junction Temperature Range	$T_J$	-50 To +150	$^\circ\text{C}$

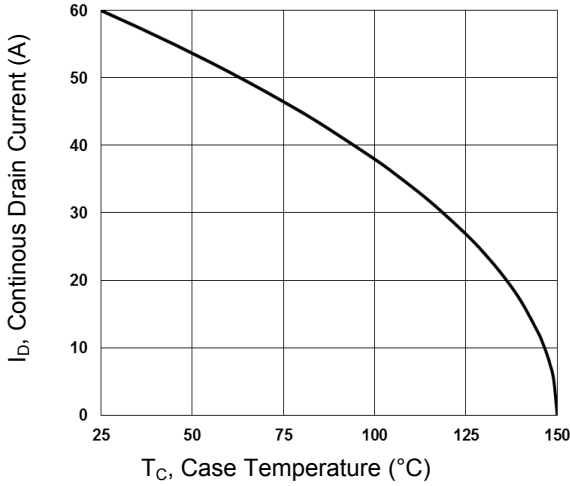
### Electrical Characteristics (T<sub>J</sub>=25°C unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
<b>Off Characteristics</b>						
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	V <sub>GS</sub> =0V, I <sub>D</sub> =250μA	100	-	-	V
BVDSS Temperature Coefficient	ΔBV <sub>DSS</sub> /ΔT <sub>J</sub>	Reference to 25°C, I <sub>D</sub> =1mA	-	0.05	-	V/°C
Drain-Source Leakage Current	I <sub>DSS</sub>	V <sub>DS</sub> =100V, V <sub>GS</sub> =0V, T <sub>J</sub> =25°C	-	-	1	μA
		V <sub>DS</sub> =80V, V <sub>GS</sub> =0V, T <sub>J</sub> =125°C	-	-	10	
Gate-Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =±20V, V <sub>DS</sub> =0V	-	-	±100	nA
<b>On Characteristics</b>						
Static Drain-Source On-State Resistance	R <sub>DS(ON)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =25A	-	15	18	mΩ
		V <sub>GS</sub> =6V, I <sub>D</sub> =15A	-	20	28	
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA	2	-	4	V
V <sub>GS(th)</sub> Temperature Coefficient	ΔV <sub>GS(th)</sub>		-	-5	-	mV/°C
Forward Transconductance	g <sub>FS</sub>	V <sub>DS</sub> =10V, I <sub>D</sub> =3A	-	10	-	S
<b>Dynamic and Switching Characteristics</b>						
Total Gate Charge <sup>3,4</sup>	Q <sub>g</sub>	V <sub>DS</sub> =50V, I <sub>D</sub> =5A, V <sub>GS</sub> =10V	-	37.6	70	nC
Gate-Source Charge <sup>3,4</sup>	Q <sub>gs</sub>		-	11.7	22	
Gate-Drain Charge <sup>3,4</sup>	Q <sub>gd</sub>		-	9.8	19	
Turn-On Delay Time <sup>3,4</sup>	t <sub>d(on)</sub>	V <sub>DD</sub> =50V, I <sub>D</sub> =1A V <sub>GS</sub> =10V, R <sub>G</sub> =6Ω	-	20	40	nS
Turn-On Rise Time <sup>3,4</sup>	t <sub>r</sub>		-	15	30	
Turn-Off Delay Time <sup>3,4</sup>	t <sub>d(off)</sub>		-	45	80	
Turn-Off Fall Time <sup>3,4</sup>	t <sub>f</sub>		-	21	40	
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =50V, V <sub>GS</sub> =0V, F=1.0MHz	-	1850	3300	pF
Output Capacitance	C <sub>oss</sub>		-	160	300	
Reverse Transfer Capacitance	C <sub>rss</sub>		-	85	160	
Gate Resistance	R <sub>g</sub>	V <sub>GS</sub> =0V, V <sub>DS</sub> =0V, F=1MHz	-	1.35	2.6	Ω
<b>Drain-Source Diode Characteristics and Maximum Ratings</b>						
Continuous Source Current	I <sub>S</sub>	V <sub>G</sub> =V <sub>D</sub> =0V, Force Current	-	-	60	A
Pulsed Source Current	I <sub>SM</sub>		-	-	120	A
Diode Forward Voltage	V <sub>SD</sub>	V <sub>GS</sub> =0V, I <sub>S</sub> =1A, T <sub>J</sub> =25°C	-	-	1	V

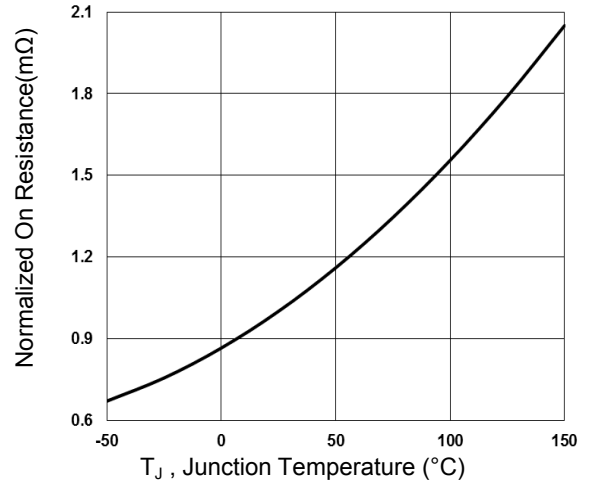
Note :

1. Repetitive Rating : Pulsed width limited by maximum junction temperature.
2. V<sub>DD</sub>=50V, V<sub>GS</sub>=10V, L=0.1mH, I<sub>AS</sub>=45A., R<sub>G</sub>=25Ω, Starting T<sub>J</sub>=25°C.
3. The data tested by pulsed , pulse width ≤ 300us , duty cycle ≤ 2%.
4. Essentially independent of operating temperature.

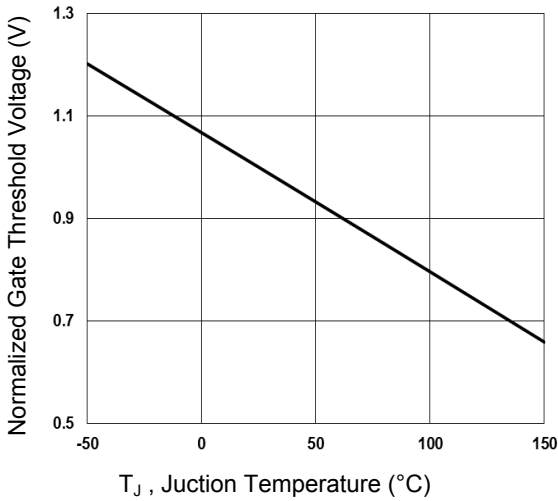
**Typical Electrical and Thermal Characteristic Curves**



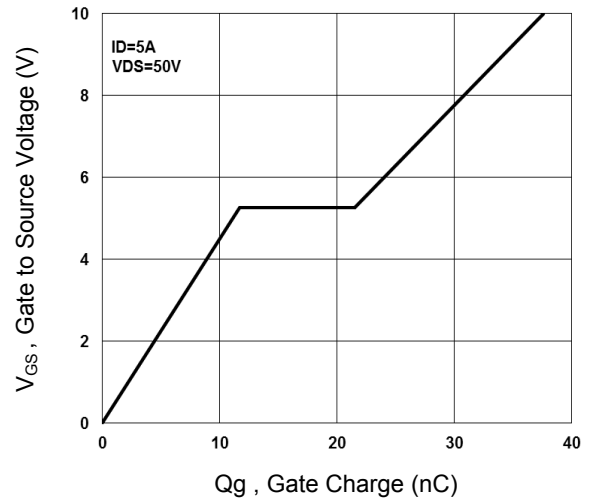
**Figure 1. Continuous Drain Current vs. T<sub>c</sub>**



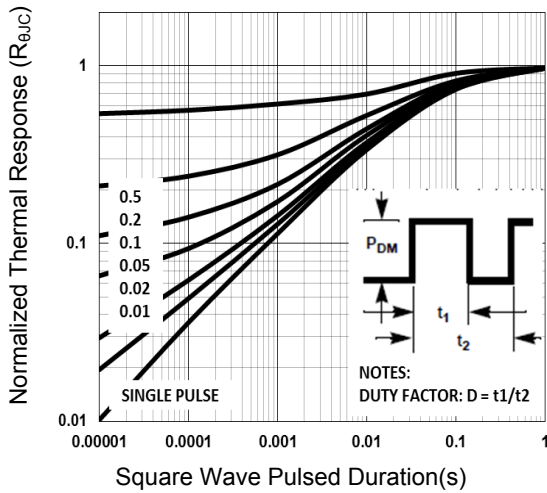
**Figure 2. Normalized R<sub>DS(ON)</sub>-vs. T<sub>J</sub>**



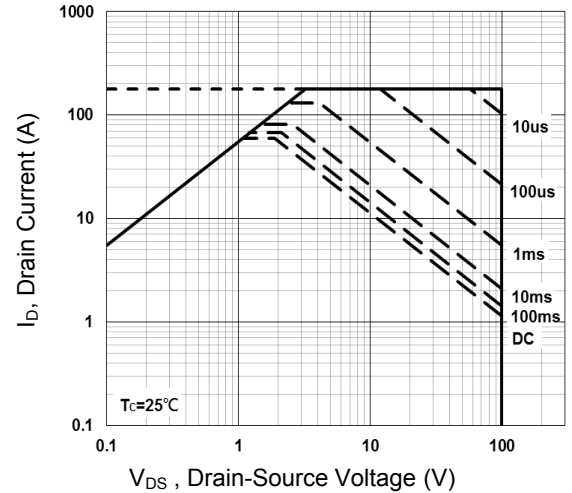
**Figure 3. Normalized V<sub>th</sub> vs. T<sub>J</sub>**



**Figure 4. Gate Charge Characteristics**

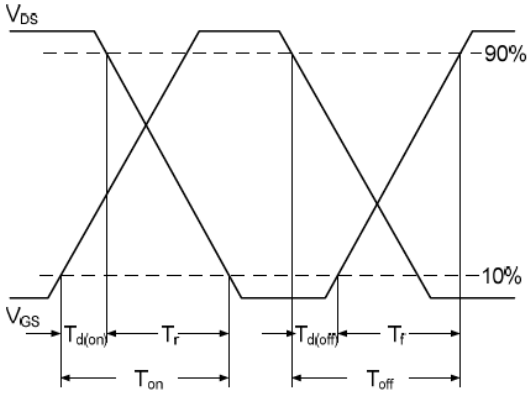


**Figure 5. Normalized Transient Impedance**

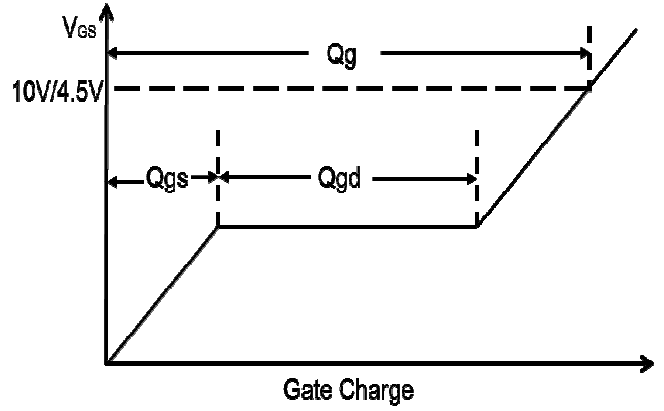


**Figure 6. Maximum Safe Operation Area**

**Typical Electrical and Thermal Characteristic Curves**



**Figure 7. Switching Time Waveform**



**Figure 8. Gate Charge Waveform**

