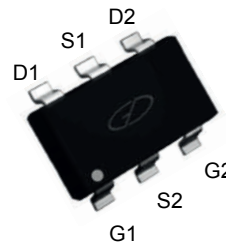
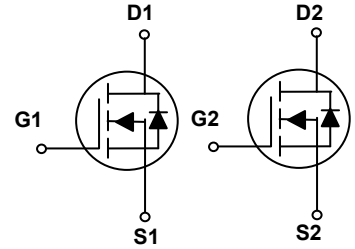


Main Product Characteristics

BV_{DSS}	20V
$R_{DS(ON)}$	34m Ω (Max.)
I_D	4.8A



SOT-23-6L



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 GSFR0206 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	Value	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	± 10	V
Drain Current-Continuous ($T_A=25^\circ\text{C}$)	I_D	4.8	A
Drain Current-Continuous ($T_A=70^\circ\text{C}$)		3.8	A
Drain Current-Pulsed ¹	I_{DM}	19.2	A
Power Dissipation ($T_A=25^\circ\text{C}$)	P_D	1.6	W
Power Dissipation—Derate above 25 $^\circ\text{C}$		0.013	W/ $^\circ\text{C}$
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	90	$^\circ\text{C/W}$
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
On / Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	20	-	-	V
Drain-Source Leakage Current	I_{DSS}	$V_{DS}=20V, V_{GS}=0V, T_J=25^\circ\text{C}$	-	-	1	μA
		$V_{DS}=16V, V_{GS}=0V, T_J=125^\circ\text{C}$	-	-	10	μA
Gate-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 10V, V_{DS}=0V$	-	-	± 100	nA
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=4.5V, I_D=3A$	-	28	34	m Ω
		$V_{GS}=2.5V, I_D=2A$	-	36	47	
		$V_{GS}=1.8V, I_D=1.5A$	-	51	66	
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.4	0.6	1	V
Forward Transconductance	g_{fs}	$V_{DS}=10V, I_D=2A$	-	3.5	-	S
Dynamic and Switching Characteristics						
Total Gate Charge ^{2,3}	Q_g	$V_{DS}=10V, I_D=3A, V_{GS}=4.5V$	-	3.2	-	nC
Gate-Source Charge ^{2,3}	Q_{gs}		-	0.5	-	
Gate-Drain Charge ^{2,3}	Q_{gd}		-	1.3	-	
Turn-On Delay Time ^{2,3}	$t_{d(on)}$	$V_{DD}=10V, R_G=6\Omega, V_{GS}=4.5V, I_D=3A$	-	2.9	-	nS
Rise Time ^{2,3}	t_r		-	8.4	-	
Turn-Off Delay Time ^{2,3}	$t_{d(off)}$		-	19.2	-	
Fall Time ^{2,3}	t_f		-	5.6	-	
Input Capacitance	C_{iss}	$V_{DS}=10V, V_{GS}=0V, F=1\text{MHz}$	-	280	-	pF
Output Capacitance	C_{oss}		-	50	-	
Reverse Transfer Capacitance	C_{rss}		-	45	-	
Source-Drain Ratings and Characteristics						
Continuous Source Current	I_S	$V_G=V_D=0V,$ Force Current	-	-	4.8	A
Pulsed Source Current	I_{SM}		-	-	9.6	A
Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=1A, T_J=25^\circ\text{C}$	-	-	1	V

Notes:

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

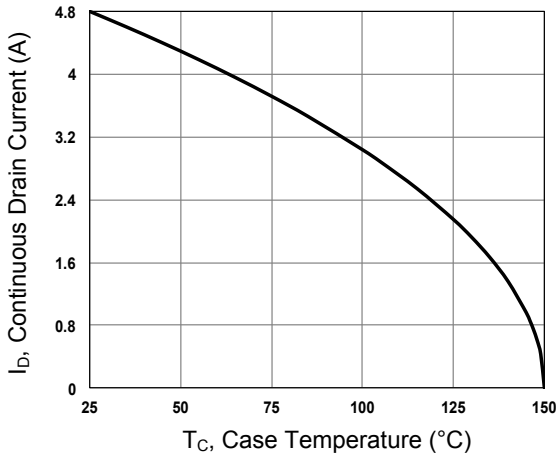


Figure 1. Continuous Drain Current vs. T_C

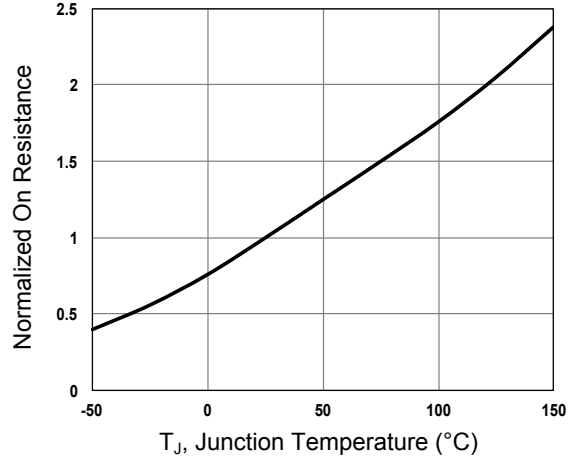


Figure 2. Normalized $R_{DS(ON)}$ vs. T_J

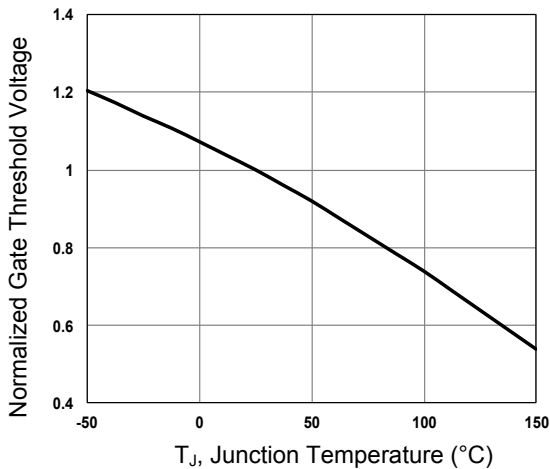


Figure 3. Normalized V_{th} vs. T_J

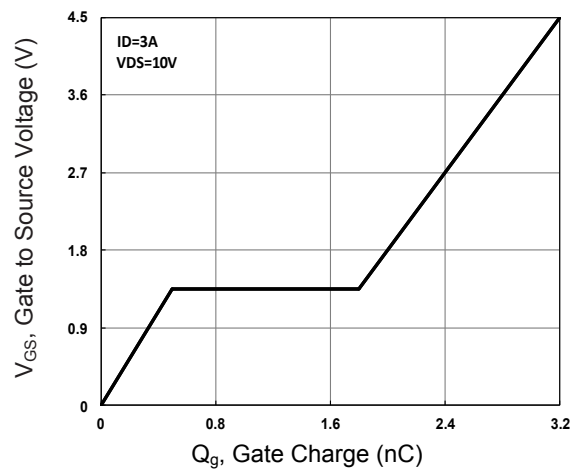


Figure 4. Gate Charge Waveform

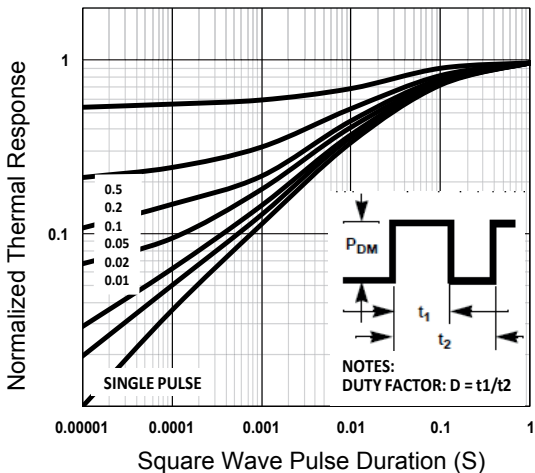


Figure 5. Normalized Transient Impedance

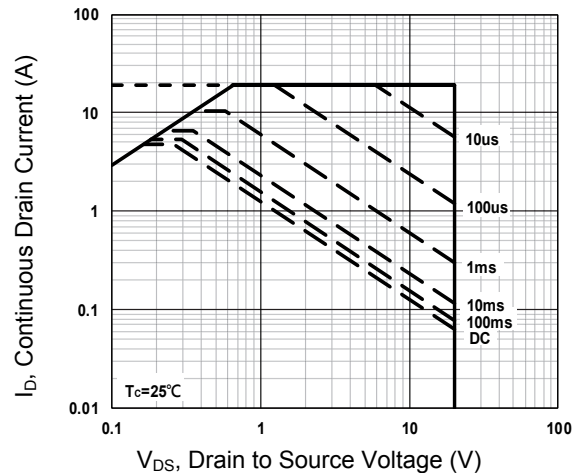
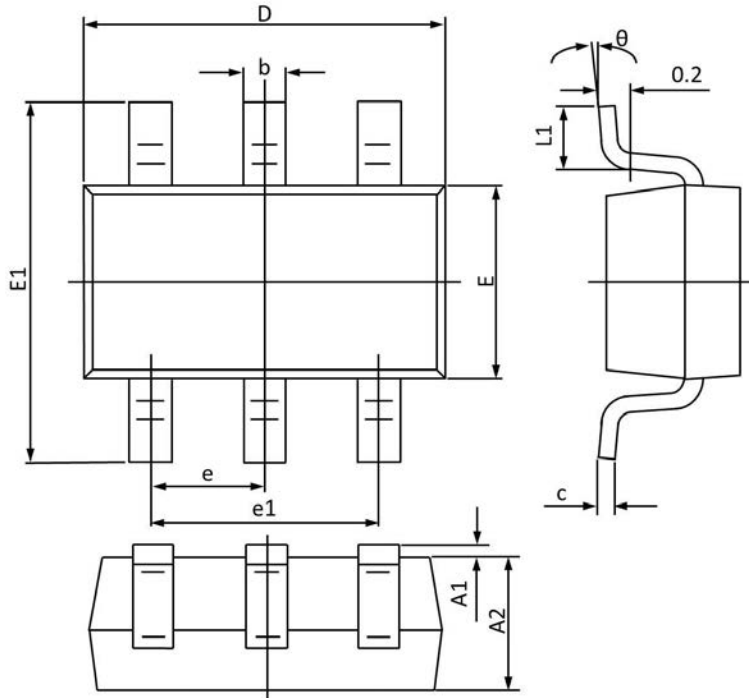


Figure 6. Maximum Safe Operation Area

Package Outline Dimensions (SOT-23-6L)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A1	0.000	0.100	0.000	0.004
A2	1.000	1.200	0.040	0.047
b	0.300	0.500	0.012	0.019
c	0.047	0.207	0.002	0.008
D	2.800	3.000	0.110	0.118
E	1.500	1.800	0.059	0.070
E1	2.600	3.000	0.103	0.118
e	0.950 TYP		0.037 TYP	
e1	1.900 TYP		0.075 TYP	
L1	0.250	0.550	0.010	0.021
theta	0°	8°	0°	8°

Order information

Device	Package	Marking	Carrier	Quantity
GSFR0206	SOT-23-6L	R0206	Tape & Reel	3,000 pcs / Reel

For more information, please contact us at: inquiry@goodarksemi.com