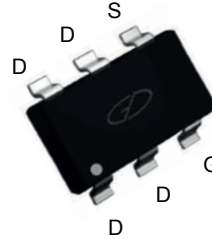


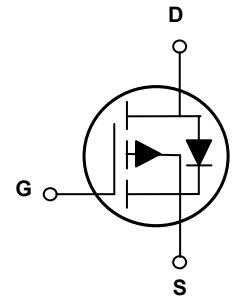


Main Product Characteristics

BV_{DSS}	-150V
$R_{DS(ON)}$	741m Ω (Max.)
I_D	-2A



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 GSFR74115 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	Max.	Unit
Drain-Source Voltage	V_{DS}	-150	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current-Continuous ($T_A=25^\circ\text{C}$)	I_D	-2	A
Drain Current-Continuous ($T_A=100^\circ\text{C}$)		-1.4	
Drain Current-Pulsed ¹	I_{DM}	-8	A
Single Pulse Avalanche Energy ²	E_{AS}	16	mJ
Single Pulse Avalanche Current ²	I_{AS}	22	A
Power Dissipation ($T_A=25^\circ\text{C}$)	P_D	2.7	W
Power Dissipation-De-rate above 25°C		0.021	
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	55	$^\circ\text{C}/\text{W}$
Operating Junction Temperature Range	T_J	-55 To +150	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-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}	$V_{GS}=0V, I_D=-250\mu A$	-150	-	-	V
Drain-Source Leakage Current	I_{DSS}	$V_{DS}=-150V, V_{GS}=0V, T_J=25^\circ\text{C}$	-	-	-1	μA
		$V_{DS}=-120V, V_{GS}=0V, T_J=125^\circ\text{C}$	-	-	-10	μA
Gate-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 100	nA
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=-10V, I_D=-1.2A$	-	660	741	m Ω
		$V_{GS}=-6V, I_D=-1.0A$	-	720	800	
Gate Threshold Voltage	$V_{GS(th)}$	$V_{GS}=V_{DS}, I_D=-250\mu A$	-2.0	-3.0	-4.0	V
Dynamic and Switching Characteristics						
Total Gate Charge ^{3,4}	Q_g	$V_{DS}=-75V, I_D=-1.1A, V_{GS}=-10V$	-	4.6	-	nC
Gate-Source Charge ^{3,4}	Q_{gs}		-	1.8	-	
Gate-Drain Charge ^{3,4}	Q_{gd}		-	0.94	-	
Gate Plateau ^{3,4}	$V_{plateau}$		-	4.8	-	V
Turn-On Delay Time ^{3,4}	$t_{d(on)}$	$V_{DD}=-75V, R_G=1\Omega, V_{GS}=-10V, I_D=-1A$	-	2.3	-	nS
Rise Time ^{3,4}	t_r		-	18	-	
Turn-Off Delay Time ^{3,4}	$t_{d(off)}$		-	10	-	
Fall Time ^{3,4}	t_f		-	20	-	
Input Capacitance	C_{iss}	$V_{DS}=-75V, V_{GS}=0V, F=1\text{MHz}$	-	244	-	pF
Output Capacitance	C_{oss}		-	25	-	
Reverse Transfer Capacitance	C_{rss}		-	2.5	-	
Gate Resistance	R_g	$V_{GS}=0V, V_{DS}=0V, F=1\text{MHz}$	-	12	-	Ω
Source-Drain Ratings and Characteristics						
Continuous Source Current	I_S	$V_G=V_D=0V,$ Force Current	-	-	-2	A
Pulsed Source Current	I_{SM}		-	-	-8	A
Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=-1A, T_J=25^\circ\text{C}$	-	-	-1	V
Reverse Recovery Time	T_{rr}	$I_S=-1A, di/dt=100A/\mu s,$ $T_J=25^\circ\text{C}$	-	34	-	nS
Reverse Recovery Charge	Q_{rr}		-	50	-	nC

Notes:

1. Repetitive rating: Pulsed width limited by maximum junction temperature.
2. $V_{DD}=-50V, V_{GS}=-10V, L=0.5\text{mH}$, starting $T_J=25^\circ\text{C}$.
3. Pulse test: pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
4. Essentially independent of operating temperature.

Typical Electrical and Thermal Characteristic Curves

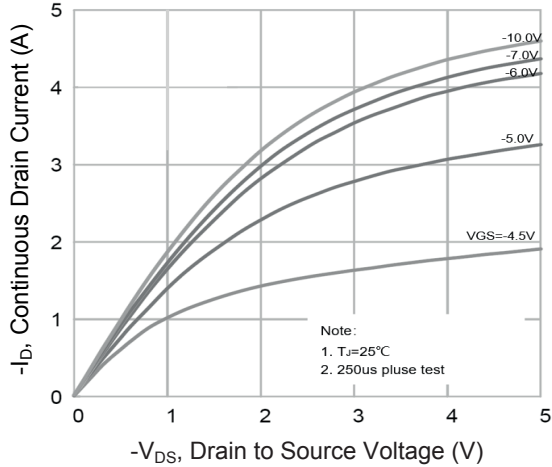


Figure 1. Typical Output Characteristics

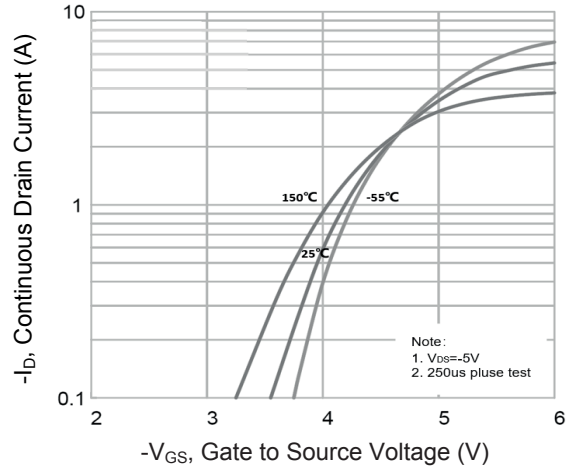


Figure 2. Transfer Characteristics

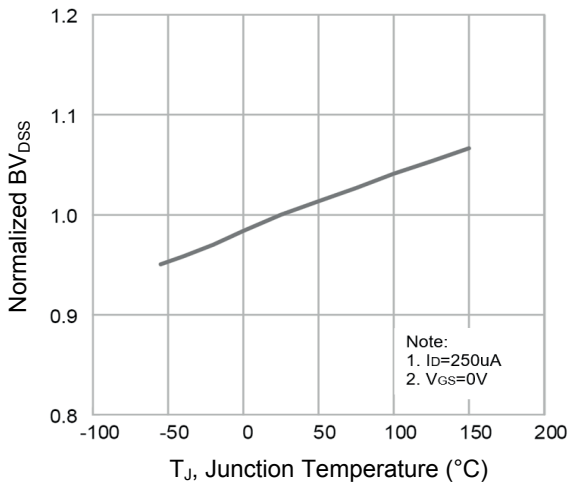


Figure 3. Normalized BV_{DS} Vs. T_J

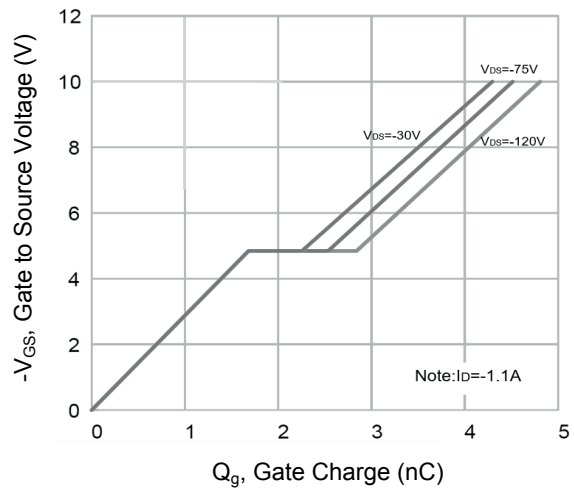


Figure 4. Gate Charge Characteristics

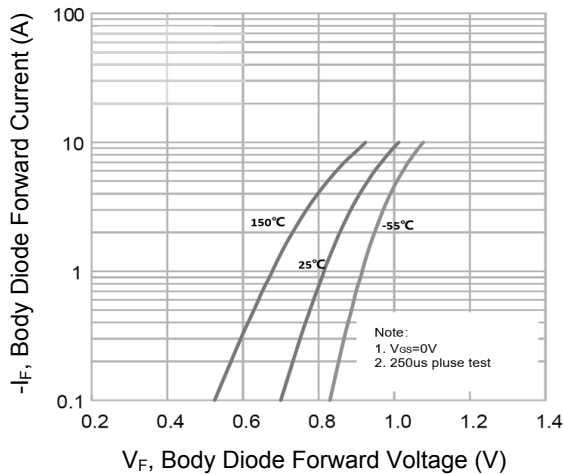


Figure 5. Body Diode Characteristics

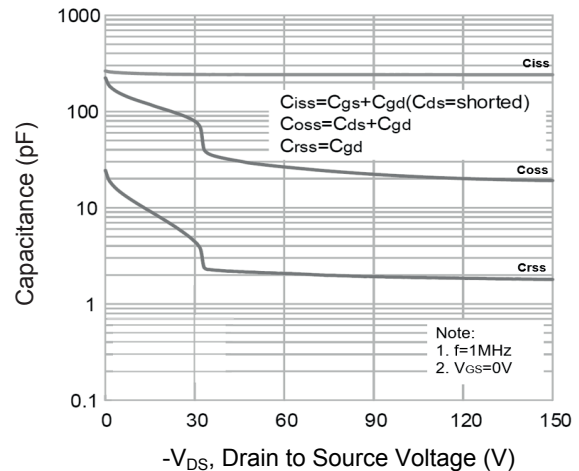


Figure 6. Capacitance Characteristics

Typical Electrical and Thermal Characteristic Curves

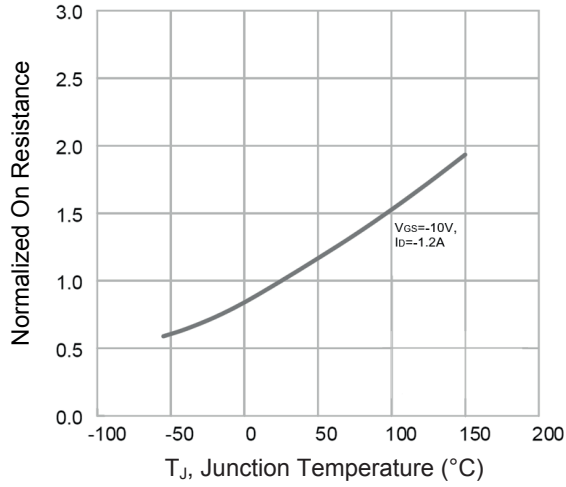


Figure 7. Normalized $R_{DS(ON)}$ vs. T_J

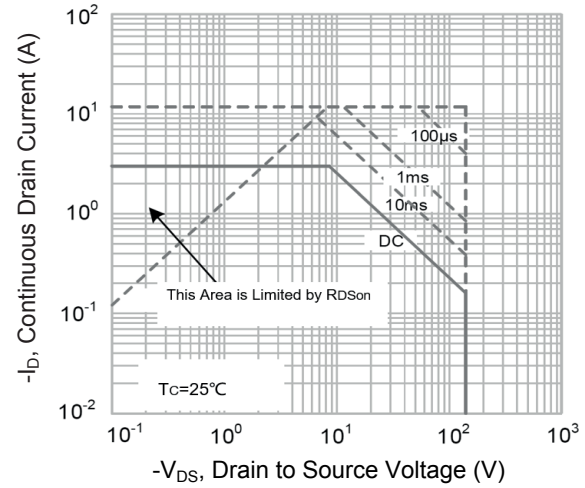
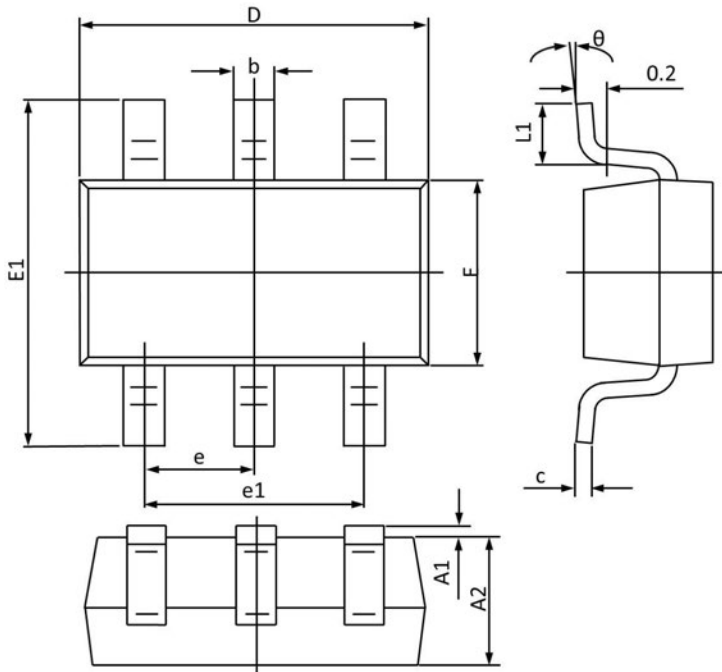


Figure 8. Maximum Safe Operation Area

Package Outline Dimensions (SOT-23-6L)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A1	-	0.15	-	0.006
A2	0.90	1.30	0.035	0.051
b	0.30	0.50	0.012	0.019
c	0.10	0.20	0.004	0.008
D	2.80	3.05	0.110	0.120
E1	2.60	3.00	0.103	0.118
F	1.50	1.80	0.059	0.071
e	0.95 TYP		0.037 TYP	
e1	1.90 TYP		0.075 TYP	
L1	0.25	0.60	0.010	0.024
θ	0°	8°	0°	8°

Order Information

Device	Package	Marking	Carrier	Quantity
GSFR74115	SOT-23-6L	R74115	Tape & Reel	3,000 Pcs / Reel