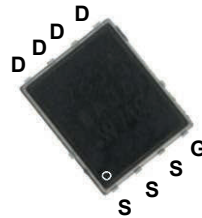
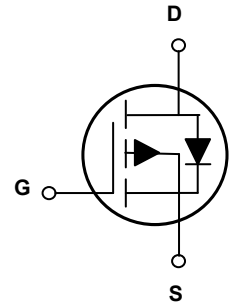


Main Product Characteristics

$V_{(BR)DSS}$	-40V
$R_{DS(ON)}$	6m Ω (Max.)
I_D	-77A



PPAK5x6



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
- AEC-Q101 qualified



Description

The GSFP4107AU 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_A=25°C unless otherwise specified)

Parameter	Symbol	Max.	Unit
Drain-Source Voltage	V_{DS}	-40	V
Gate-Source Voltage	V_{GS}	±20	V
Drain Current-Continuous (T _C =25°C), V _{GS} =10V ¹	I_D	-77	A
Drain Current-Continuous (T _C =100°C), V _{GS} =10V ¹		-48	A
Drain Current-Pulsed ²	I_{DM}	-328	A
Pulsed Source Current (Body Diode) ²	I_{SM}	-328	A
Power Dissipation (T _C =25°C) ³	P_D	58	W
Single Pulse Avalanche Energy (L=0.3mH)	E_{AS}	576	mJ
Single Pulse Avalanche Current (L=0.3mH)	I_{AS}	48	A
Thermal Resistance, Junction-to-Ambient (t ≤ 10s) ⁴	$R_{\theta JA}$	62	°C/W
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	2.58	°C/W
Operating Junction Temperature Range	T_J	-55 To +175	°C
Storage Temperature Range	T_{STG}	-55 To +175	°C

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

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
On / Off Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} = 0V, I _D =-250uA	-40	-	-	V
Drain-to-Source Leakage Current	I _{DSS}	V _{DS} =-40V, V _{GS} =0V	-	-	-1	μA
Drain-to-Source Leakage Current		V _{DS} =-40V, V _{GS} =0V, T _J =125°C	-	-	-50	μA
Gate-to-Source Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V	-	-	±100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{GS} =V _{DS} , I _D =-250uA	-1.1	-1.7	-2.8	V
Drain Static-Source On-Resistance	R _{DS(ON)}	V _{GS} =-10V, I _D =-20A	-	4.3	6	mΩ
		V _{GS} =-4.5V, I _D =-20A	-	5.9	7.8	mΩ
Dynamic and Switching Characteristics						
Total Gate Charge	Q _g	V _{DD} =-20V, I _D =-20A, V _{GS} =-10V	-	118	-	nC
Gate-Source Charge	Q _{gs}		-	13	-	
Gate-Drain Charge	Q _{gd}		-	22	-	
Turn-On Delay Time	t _{d(on)}	V _{DD} =-20V, R _G =3Ω, R _L =1.0Ω, V _{GS} =-10V, I _D =-20A	-	17	-	nS
Rise Time	t _r		-	18	-	
Turn-Off Delay Time	t _{d(off)}		-	69	-	
Fall Time	t _f		-	33	-	
Input Capacitance	C _{iss}	V _{DS} =-20V, V _{GS} =0V, F=1MHz	-	6600	-	pF
Output Capacitance	C _{oss}		-	546	-	
Reverse Transfer Capacitance	C _{rss}		-	345	-	
Gate Resistance	R _g	F=1MHz	-	2.1	-	Ω
Source-Drain Ratings and Characteristics						
Maximum Body-Diode Continuous Current	I _S	MOSFET symbol showing the integral reverse p-n junction diode.	-	-77	-	A
Maximum Body-Diode Pulse Current	I _{SM}		-	-328	-	A
Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =-20A, T _J =25°C	-	-0.9	-1.2	V
Reverse Recovery Time	T _{rr}	I _F =-20A, di/dt=100A/μs, T _J =25°C	-	25	-	nS
Reverse Recovery Charge	Q _{rr}		-	139	-	nC

Notes:

1. Calculated continuous current based on maximum allowable junction temperature.
2. Repetitive rating; pulse width limited by max. junction temperature.
3. The power dissipation P_D is based on max. junction temperature, using junction-to-case thermal resistance.
4. The value of $R_{\theta JA}$ is measured with the device mounted on 1 in 2 FR-4 board with 2oz. Copper, in a still air environment with $T_A=25^{\circ}\text{C}$.

Typical Electrical and Thermal Characteristic Curves

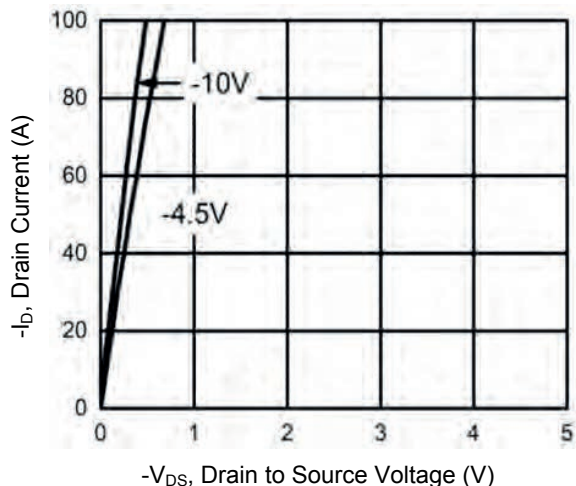


Figure 1. Output Characteristics

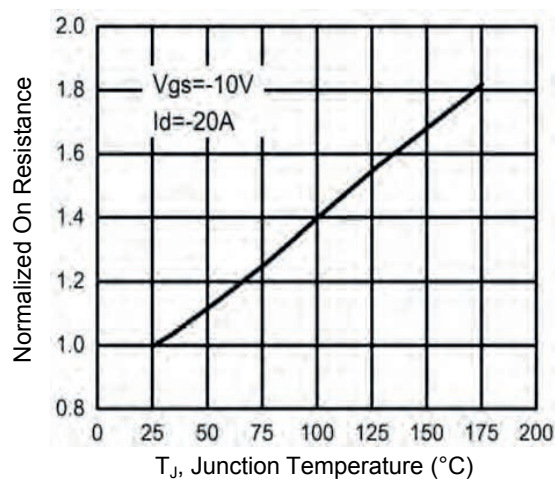


Figure 2. Normalized $R_{DS(ON)}$ vs. T_J

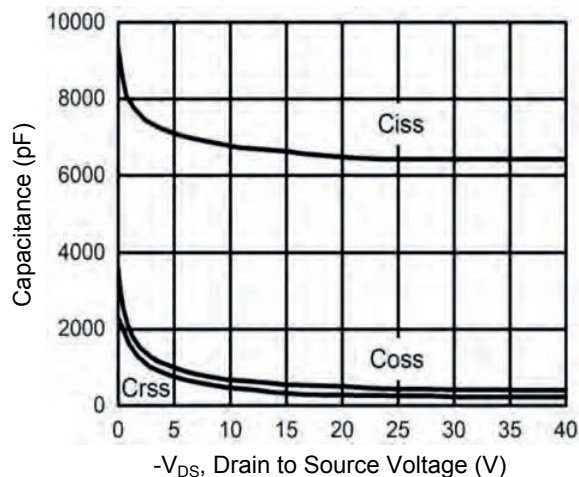


Figure 3. Capacitance Characteristics

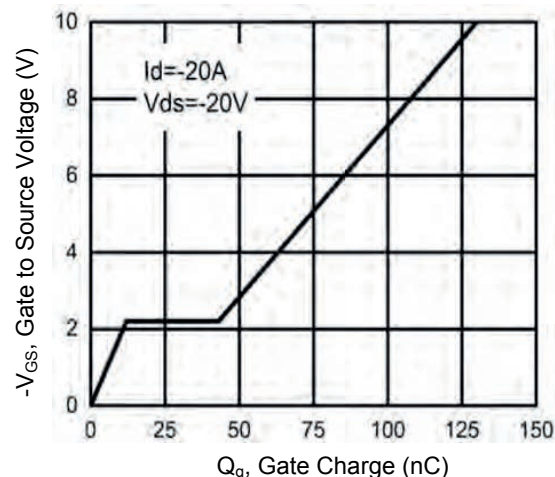


Figure 4. Gate Charge Waveform

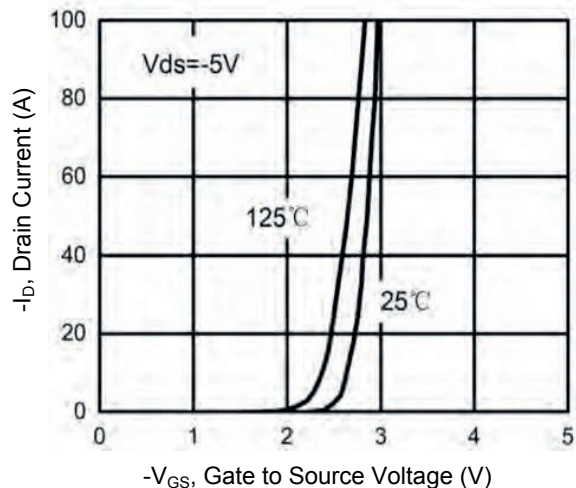


Figure 5. Transfer Characteristics

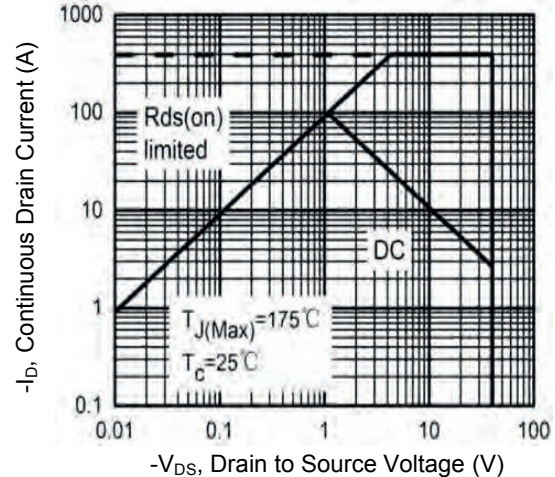
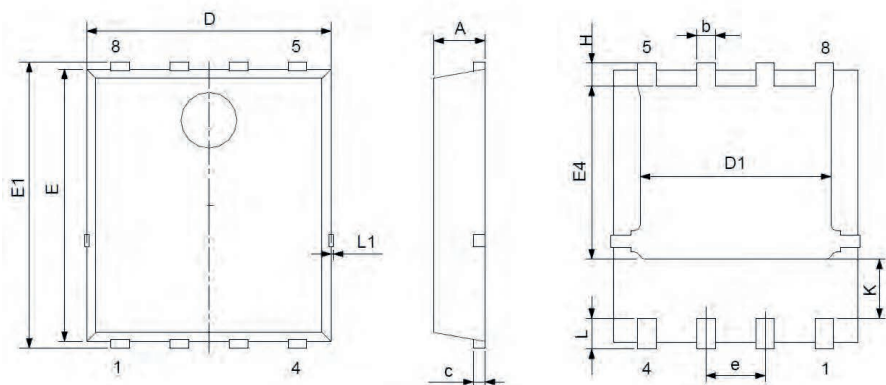


Figure 6. Maximum Safe Operation Area

Package Outline Dimensions (PPAK5x6)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.200	0.035	0.047
c	0.154	0.354	0.006	0.014
D	4.800	5.400	0.189	0.213
E	5.660	6.060	0.223	0.239
D1	3.760	4.300	0.148	0.169
E1	5.900	6.350	0.232	0.250
b	0.300	0.550	0.012	0.022
k	1.100	1.500	0.043	0.059
e	1.070	1.370	0.042	0.054
E4	3.340	3.920	0.131	0.154
L	0.300	0.710	0.012	0.028
L1	-	0.120	-	0.005
H	0.400	0.710	0.016	0.028

Order Information

Device	Package	Marking	Carrier	Quantity
GSFP4107AU	PPAK5x6	P4107	Tape & Reel	5,000 Pcs / Reel