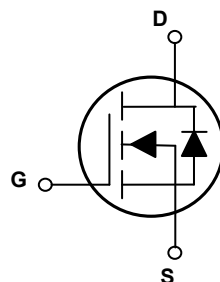
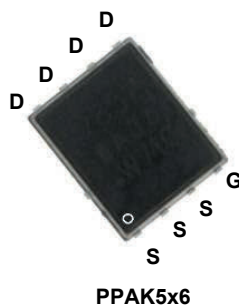


Main Product Characteristics

$V_{(BR)DSS}$	60V
$R_{DS(ON)}$	2.8m Ω (Max.)
I_D	140A



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 GSGP2R806AU 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 ($T_J=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Max.	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current-Continuous, @Steady-State ($T_C=25^{\circ}\text{C}$)	I_D	140	A
Drain Current-Continuous, @Steady-State ($T_C=100^{\circ}\text{C}$)		88	
Drain Current-Pulsed ²	I_{DM}	560	A
Single Pulse Avalanche Energy ¹	E_{AS}	180	mJ
Single Pulse Avalanche Current	I_{AS}	60	A
Power Dissipation ($T_C=25^{\circ}\text{C}$) ³	P_D	109	W
		0.73	W/ $^{\circ}\text{C}$
Thermal Resistance, Junction-to-Ambient (PCB Mounted, Steady-State)	$R_{\theta JA}$	50	$^{\circ}\text{C}/\text{W}$
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	1.38	$^{\circ}\text{C}/\text{W}$
Operating Junction Temperature Range	T_J	-55 To +175	$^{\circ}\text{C}$
Storage Temperature Range	T_{STG}	-55 To +175	$^{\circ}\text{C}$
Soldering Temperature	T_{SOLD}	260	$^{\circ}\text{C}$

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	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	60	-	-	V
Drain-Source Leakage Current	I_{DSS}	$V_{DS}=60V, V_{GS}=0V, T_J=25^{\circ}\text{C}$	-	-	1	μA
		$V_{DS}=60V, V_{GS}=0V, T_J=125^{\circ}\text{C}$	-	3.0	-	μA
Gate-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 100	nA
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=15A$	-	2.4	2.8	m Ω
Gate Threshold Voltage	$V_{GS(th)}$	$V_{GS}=V_{DS}, I_D=250\mu A$	2.2	-	3.8	V
Dynamic and Switching Characteristics						
Total Gate Charge ^{4,5}	Q_g	$V_{DD}=30V, I_D=30A, V_{GS}=10V$	-	48	-	nC
Gate-Source Charge ^{4,5}	Q_{gs}		-	17	-	
Gate-Drain ("Miller") Charge ^{4,5}	Q_{gd}		-	10	-	
Gate to Plateau ^{4,5}	$V_{plateau}$		-	5.3	-	V
Turn-On Delay Time ^{4,5}	$t_{d(on)}$	$V_{DD}=30V, R_G=4.7\Omega, V_{GS}=10V, I_D=15A$	-	20	-	nS
Rise Time ^{4,5}	t_r		-	35	-	
Turn-Off Delay Time ^{4,5}	$t_{d(off)}$		-	42	-	
Fall Time ^{4,5}	t_f		-	13	-	
Input Capacitance	C_{iss}	$V_{DS}=30V, V_{GS}=0V, F=1\text{MHz}$	-	3115	-	pF
Output Capacitance	C_{oss}		-	742	-	
Reverse Transfer Capacitance	C_{rss}		-	27	-	
Gate Resistance	R_g	$F=1\text{MHz}$	-	1.6	-	Ω
Drain-Source Diode Characteristics and Maximum Ratings						
Continuous Source Current (Body Diode)	I_S	MOSFET symbol showing the integral reverse p-n junction diode.	-	-	140	A
Pulsed Source Current	$I_{S,pulse}$		-	-	560	A
Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=30A$	-	-	1.2	V
Reverse Recovery Time ⁴	t_{rr}	$V_{GS}=0V, I_S=30A, V_R=48V, di_f/dt=100A/\mu s$	-	50	-	nS
Reverse Recovery Charge ⁴	Q_{rr}		-	76	-	nC
Reverse Recovery Peak Current ⁴	I_{rrm}		-	14	-	A

Notes:

1. $L=0.1\text{mH}, V_{DD}=48V, R_G=25\Omega$, starting temperature $T_J=25^{\circ}\text{C}$.
2. Pulse time of 5 μs .
3. The dissipated power value will change with the temperature. When it is greater than 25°C , the dissipated power value will decrease by 0.55°C/W for every 1 degree of temperature increase.
4. Pulse test: Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
5. Basically unaffected by operating temperature.

Typical Electrical and Thermal Characteristic Curves

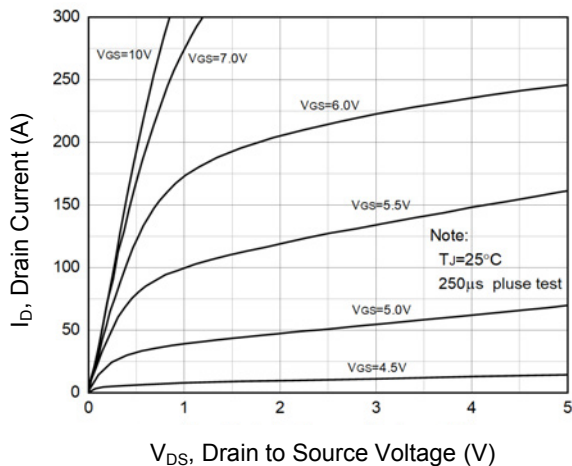


Figure 1. Typical Output Characteristics

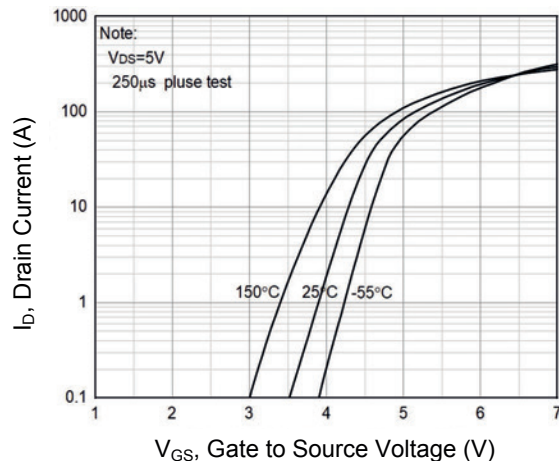


Figure 2. Transfer Characteristics

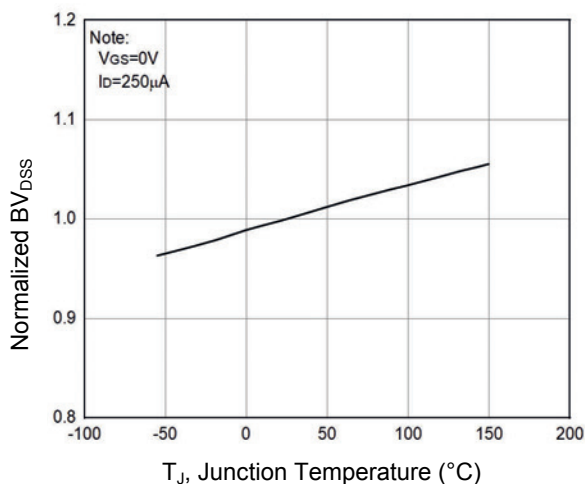


Figure 3. Normalized BV_{DS} vs. T_J

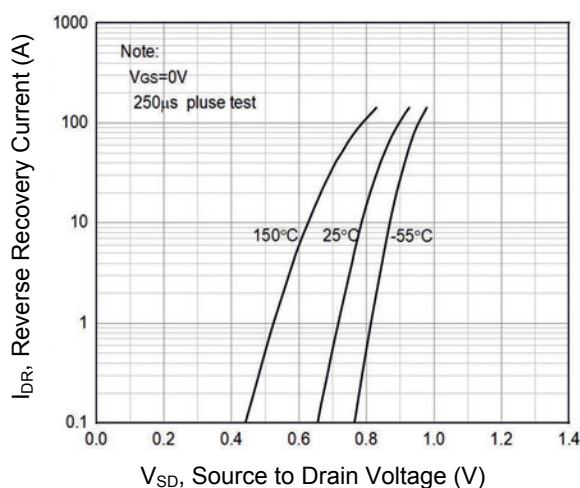


Figure 4. Body Diode Characteristics

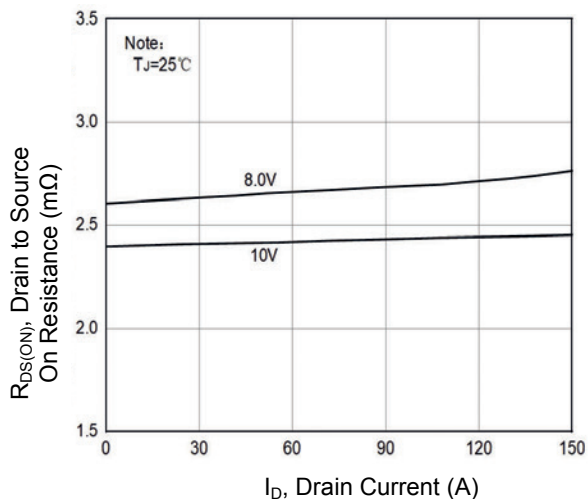


Figure 5. $R_{DS(ON)}$ vs. Drain Current

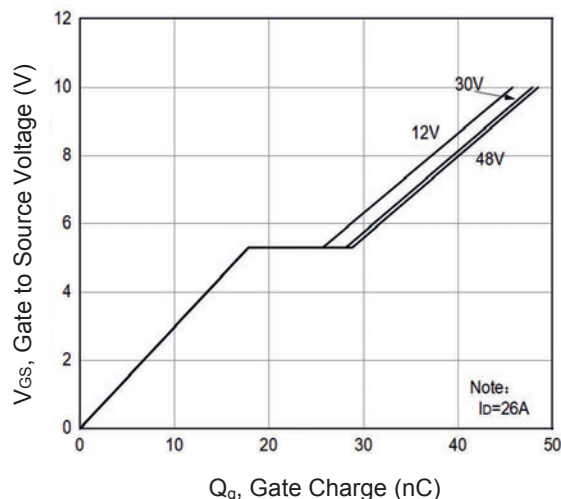


Figure 6. Gate Charge Characteristics

Typical Electrical and Thermal Characteristic Curves

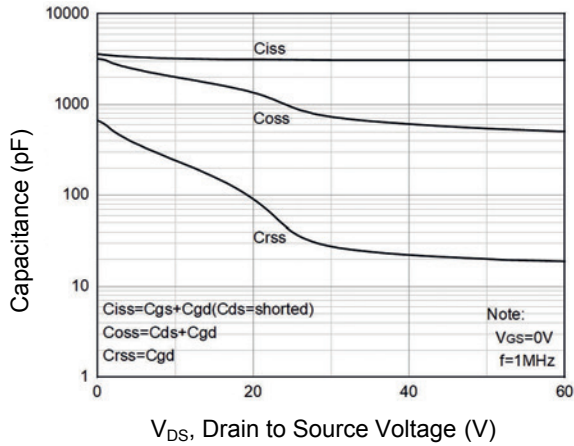


Figure 7. Capacitance Characteristics

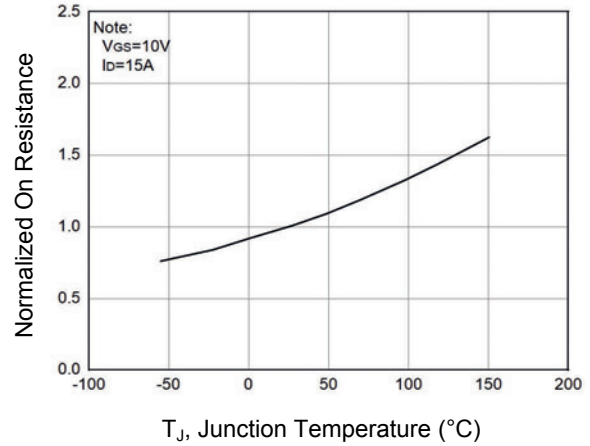


Figure 8. Normalized $R_{DS(ON)}$ vs. T_J

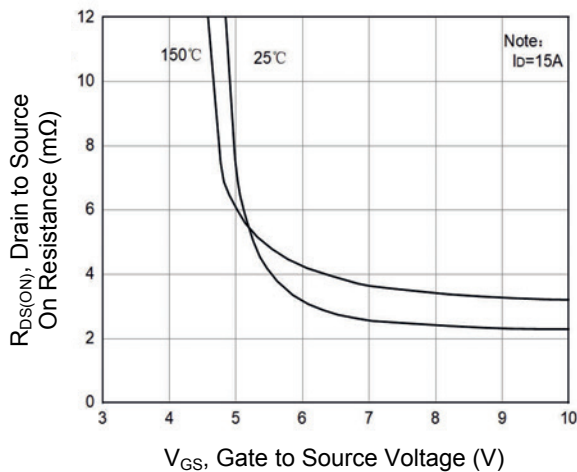


Figure 9. $R_{DS(ON)}$ vs. V_{GS}

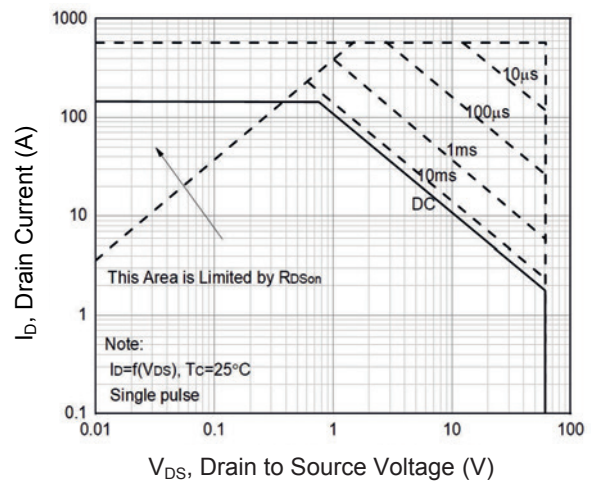
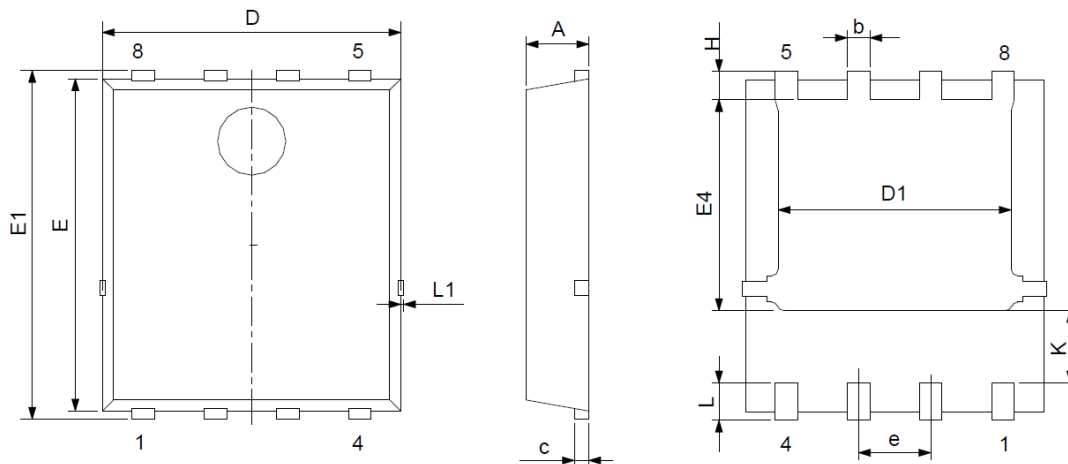


Figure 10. Safe Operation Area

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
GSGP2R806AU	PPAK5x6	P2R806AU	Tape & Reel	5,000pcs / Reel

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