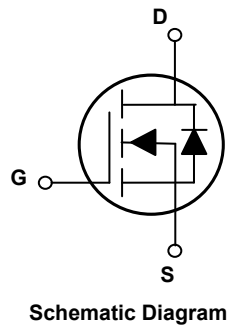
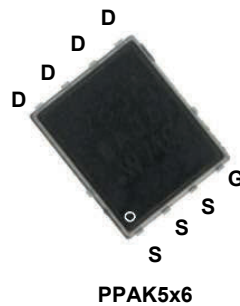


Main Product Characteristics

$V_{(BR)DSS}$	80V
$R_{DS(ON)}$	4.6mΩ (Max.)
I_D	110A



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 GSGP4R608AU 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}	80	V
Gate-to-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current, @ Steady-State ($T_C=25^\circ\text{C}$) ¹	I_D	110	A
Continuous Drain Current, @ Steady-State ($T_C=100^\circ\text{C}$)		80	A
Pulsed Drain Current ²	I_{DM}	440	A
Power Dissipation ($T_C=25^\circ\text{C}$)	P_D	140	W
Linear Derating Factor ($T_C=25^\circ\text{C}$)		0.94	W/ $^\circ\text{C}$
Single Pulse Avalanche Energy ³	E_{AS}	400	mJ
Junction-to-Case	$R_{\theta JC}$	1.07	$^\circ\text{C/W}$
Junction-to-Ambient (PCB Mounted, Steady-State) ⁴	$R_{\theta JA}$	62.5	$^\circ\text{C/W}$
Operating Junction and Storage Temperature Range	T_J/T_{STG}	-55 to +175	$^\circ\text{C}$

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

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
On / Off Characteristics						
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	80	-	-	V
Drain-to-Source Leakage Current	I_{DSS}	$V_{DS}=80V, V_{GS}=0V$	-	-	1	μA
		$T_J=125^{\circ}\text{C}$	-	-	50	
Gate-to-Source Forward Leakage	I_{GSS}	$V_{GS}=20V$	-	-	100	nA
		$V_{GS}=-20V$	-	-	-100	
Static Drain-to-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=30A$	-	3.9	4.6	m Ω
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	2.1	3.1	3.9	V
Dynamic and Switching Characteristics						
Input Capacitance	C_{iss}	$V_{GS}=0V, V_{DS}=40V,$ $f=1\text{MHz}$	-	4286	-	pF
Output Capacitance	C_{oss}		-	669	-	
Reverse Transfer Capacitance	C_{rss}		-	19	-	
Total Gate Charge	Q_g	$I_D=30A, V_{DS}=40V,$ $V_{GS}=10V$	-	69	-	nC
Gate-to-Source Charge	Q_{gs}		-	30	-	
Gate-to-Drain ("Miller") Charge	Q_{gd}		-	16	-	
Turn-on Delay Time	$t_{d(on)}$	$V_{GS}=10V, V_{DS}=40V,$ $R_g=24\Omega, I_D=13.2A$	-	59	-	nS
Rise Time	t_r		-	82	-	
Turn-Off Delay Time	$t_{d(off)}$		-	126	-	
Fall Time	t_f		-	72	-	
Gate Resistance	R_g	$f=1\text{MHz}$	-	1.7	-	Ω
Source-Drain Ratings and Characteristics						
Continuous Source Current (Body Diode)	I_S	MOSFET symbol showing the integral reverse p-n junction diode.	-	-	110	A
Pulsed Source Current (Body Diode)	I_{SM}		-	-	440	A
Diode Forward Voltage	V_{SD}	$I_S=30A, V_{GS}=0V$	-	1	1.2	V
Reverse Recovery Time	T_{rr}	$T_J=25^{\circ}\text{C}, I_F=20A,$ $di/dt=100A/\mu s$	-	53	-	ns
Reverse Recovery Charge	Q_{rr}		-	0.31	-	uc

Note:

1. Pulse test: Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
2. Repetitive rating; pulse width limited by max. junction temperature.
3. $L=0.5\text{mH}, I_{AS}=40A, V_{DD}=72V, T_J=25^{\circ}\text{C}$.
4. Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch.

Typical Electrical and Thermal Characteristic Curves

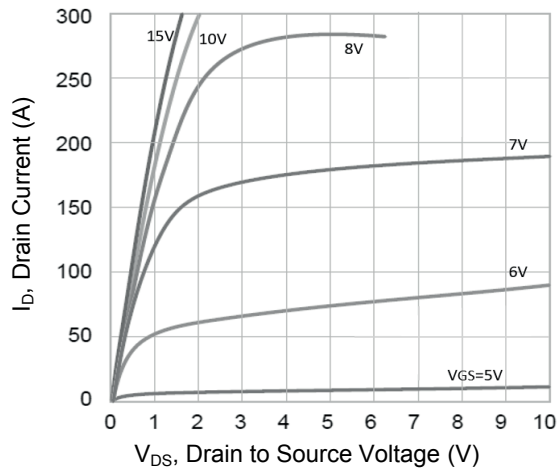


Figure 1. Typical Output Characteristics

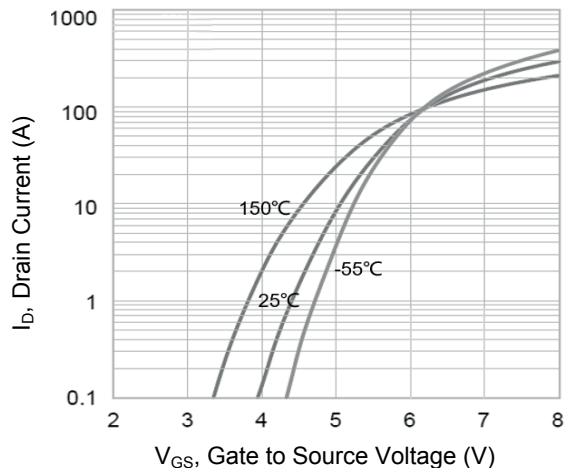


Figure 2. Transfer Characteristics

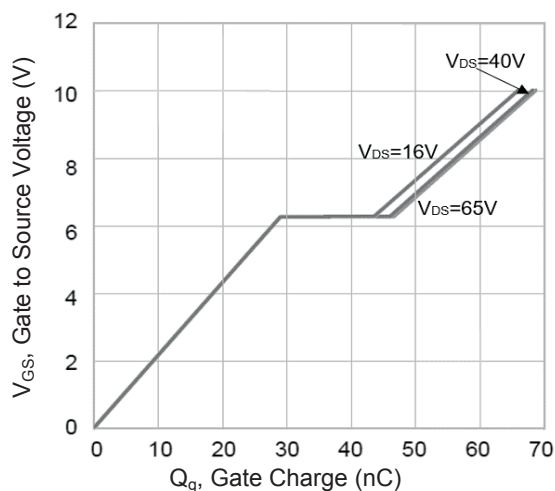


Figure 3. Gate Charge

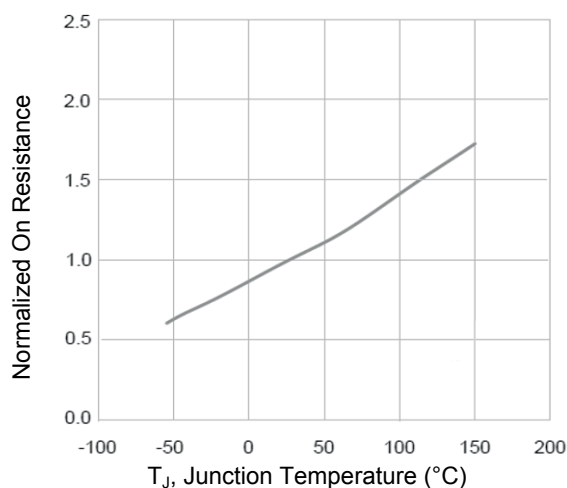


Figure 4. Normalized $R_{DS(ON)}$ vs. T_J

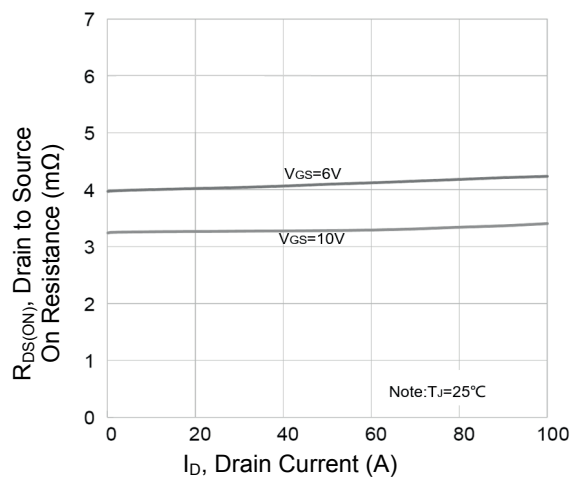


Figure 5. $R_{DS(ON)}$ vs. Drain Current

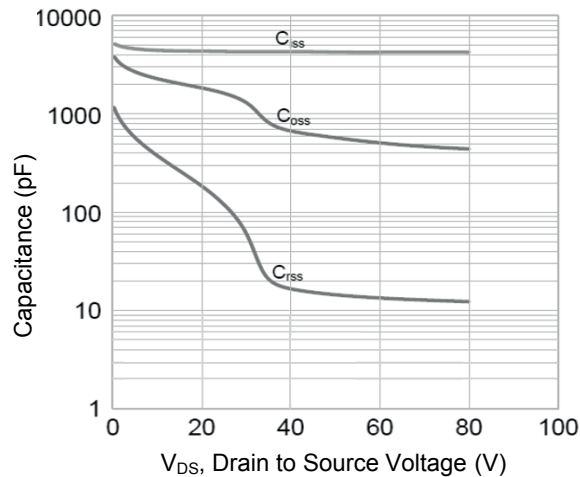


Figure 6. Capacitance Characteristics

Typical Electrical and Thermal Characteristic Curves

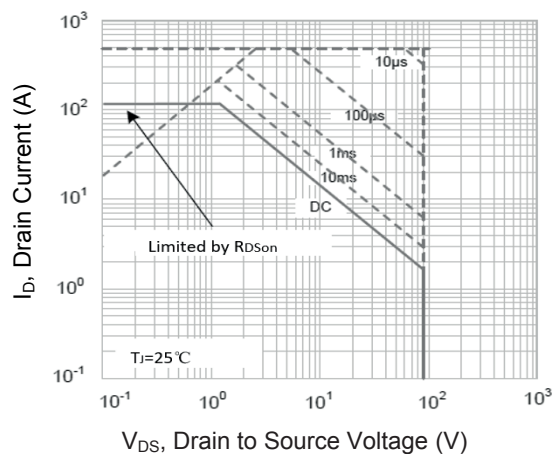


Figure 7. Safe Operation Area

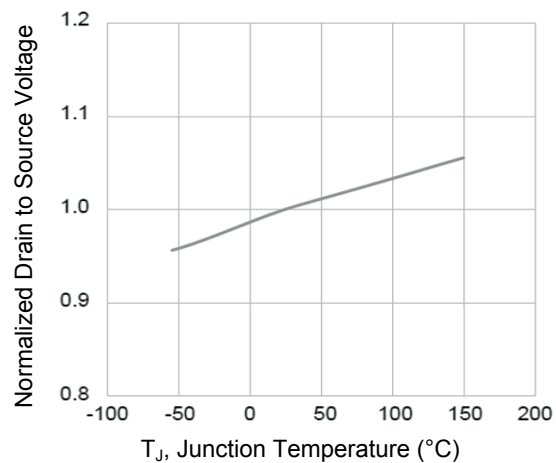
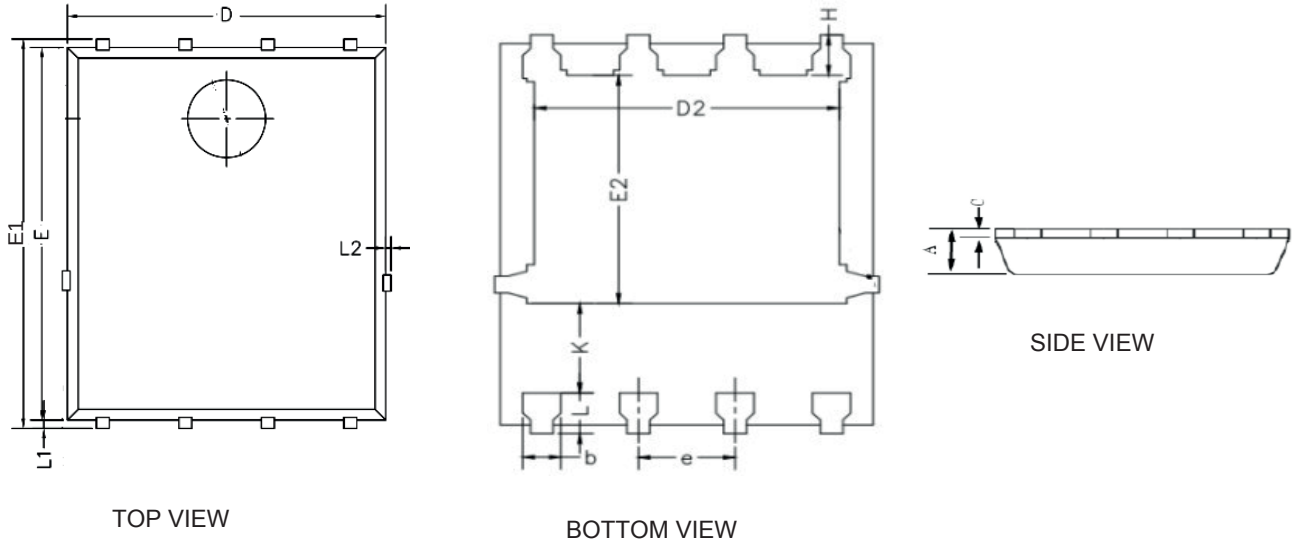


Figure 8. Normalized BV_{DSS} vs. T_J

Package Outline Dimensions (PPAK5x6)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.90	1.20	0.035	0.047
b	0.30	0.55	0.012	0.022
C	0.15	0.35	0.006	0.014
D	4.70	5.20	0.185	0.205
D2	3.76	4.20	0.148	0.165
E2	3.30	3.85	0.130	0.152
E	5.60	5.90	0.220	0.232
E1	5.80	6.20	0.228	0.244
K	1.10	-	0.043	-
H	0.45	0.75	0.018	0.030
L	0.45	0.75	0.018	0.030
L1	0.25	0.45	0.010	0.018
e	1.27 BSC		0.050 BSC	

Order Information

Device	Package	Marking	Carrier	Quantity
GSGP4R608AU	PPAK5x6	P4R608AU	Tape & Reel	5,000 Pcs / Reel