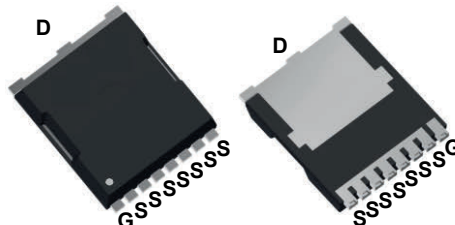
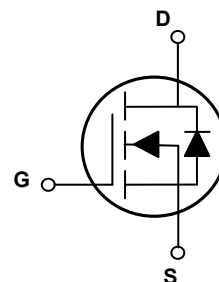


Main Product Characteristics

BV_{DSS}	80V
$R_{DS(ON)}$	1.6m Ω (Max.)
I_D	300A



TOLL



Schematic Diagram

Features and Benefits

- Low on-resistance with low gate charge
- Fast switching and reverse body recovery
- High ruggedness and robustness
- AEC-Q101 qualified



Description

The GSGTL1R608AU 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-Source Voltage	V_{GS}	± 20	V
Drain Current-Continuous, @ Steady-State ($T_C=25^{\circ}\text{C}$)	I_D	300	A
Drain Current-Continuous, @ Steady-State ($T_C=100^{\circ}\text{C}$)		206	
Drain Current-Pulsed ($T_C=25^{\circ}\text{C}$) ¹	I_{DM}	1200	A
Single Pulse Avalanche Energy	E_{AS}	3400	mJ
Single Pulse Avalanche Current	I_{AS}	80	A
Power Dissipation ($T_C=25^{\circ}\text{C}$) ²	P_D	400	W
Thermal Resistance, Junction-to-Ambient (PCB Mounted, Steady-State)	$R_{\theta JA}$	50	$^{\circ}\text{C/W}$
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	0.38	$^{\circ}\text{C/W}$
Operating Junction Temperature Range	T_J	-55 To +175	$^{\circ}\text{C}$
Storage Temperature Range	T_{STG}	-55 To +175	$^{\circ}\text{C}$

Electrical Characteristics (T_A=25°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 =250μA	80	-	-	V
Drain-Source Leakage Current	I _{DSS}	V _{DS} =80V, V _{GS} =0V, T _J =25°C	-	-	1	μA
		V _{DS} =80V, V _{GS} =0V, T _J =125°C	-	5.0	-	μA
Gate-Source Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V	-	-	±100	nA
Static Drain-Source On-Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =30A	-	1.1	1.6	mΩ
Gate Threshold Voltage	V _{GS(th)}	V _{GS} =V _{DS} , I _D =250μA	2.1	-	3.9	V
Dynamic and Switching Characteristics						
Total Gate Charge ^{3,4}	Q _g	V _{DD} =40V, I _D =80A, V _{GS} =10V	-	202	-	nC
Gate-Source Charge ^{3,4}	Q _{gs}		-	53	-	
Gate-Drain ("Miller") Charge ^{3,4}	Q _{gd}		-	52	-	
Gate to Plateau ^{3,4}	V _{plateau}		-	4.9	-	V
Turn-On Delay Time ^{3,4}	t _{d(on)}	V _{DD} =40V, R _G =6Ω, V _{GS} =10V, I _D =80A	-	32	-	nS
Rise Time ^{3,4}	t _r		-	82	-	
Turn-Off Delay Time ^{3,4}	t _{d(off)}		-	80	-	
Fall Time ^{3,4}	t _f		-	34	-	
Input Capacitance	C _{iss}	V _{DS} =40V, V _{GS} =0V, F=1MHz	-	13000	-	pF
Output Capacitance	C _{oss}		-	3000	-	
Reverse Transfer Capacitance	C _{rss}		-	57	-	
Gate Resistance	R _g	F=1MHz	-	2.0	-	Ω
Source-Drain Ratings and Characteristics						
Continuous Source Current (Body Diode)	I _S	MOSFET symbol showing the integral reverse p-n junction diode.	-	-	300	A
Pulsed Source Current	I _{S-pulse}		-	-	1200	A
Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =30A	-	-	1.4	V
Reverse Recovery Time ³	T _{rr}	V _{GS} =0V, I _S =20A, dI _F /dt=100A/μs	-	120	-	nS
Reverse Recovery Charge ³	Q _{rr}		-	430	-	nC

Note:

1. Pulse time of 5μs, pulse width limited by maximum junction temperature.
2. The dissipated power value will change with the temperature. When it is greater than 25°C, the dissipated power value will decrease by 1.0°C/W for every 1 degree of temperature increase.
3. Pulse test: pulse width ≤ 300μs, duty cycle ≤ 2%.
4. Essentially independent of operating temperature.

Typical Electrical and Thermal Characteristic Curves

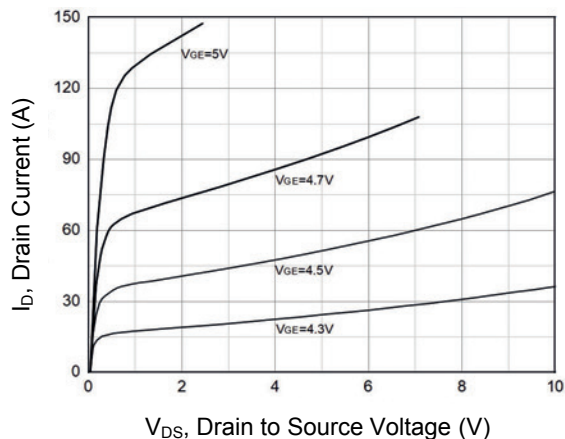


Figure 1. Typical Output Characteristics

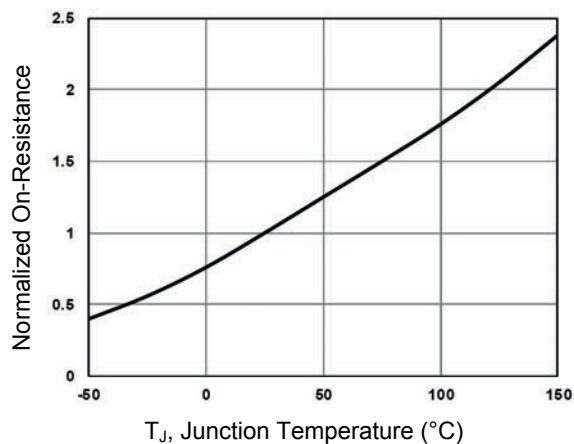


Figure 2. Normalized $R_{DS(ON)}$ vs. T_J

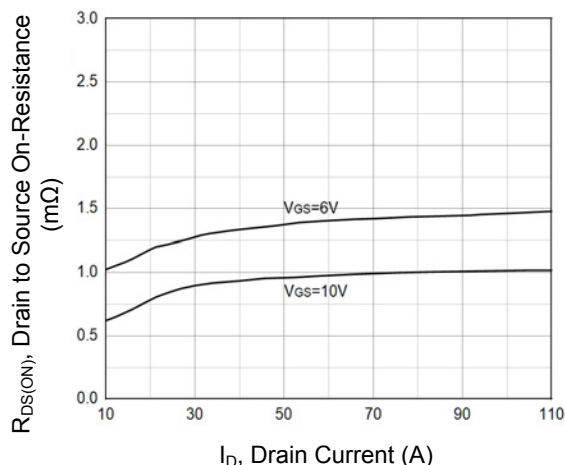


Figure 3. $R_{DS(ON)}$ vs. Drain Current

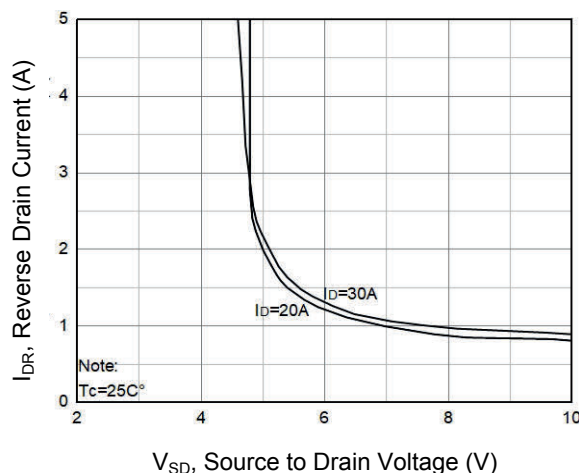


Figure 4. Body Diode Characteristics

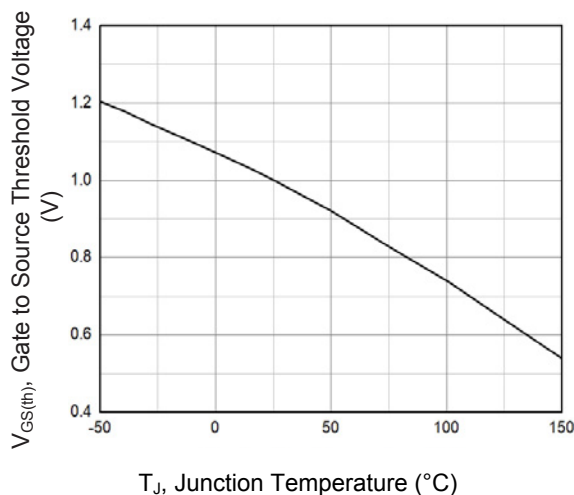


Figure 5. Gate Threshold Voltage vs. T_J

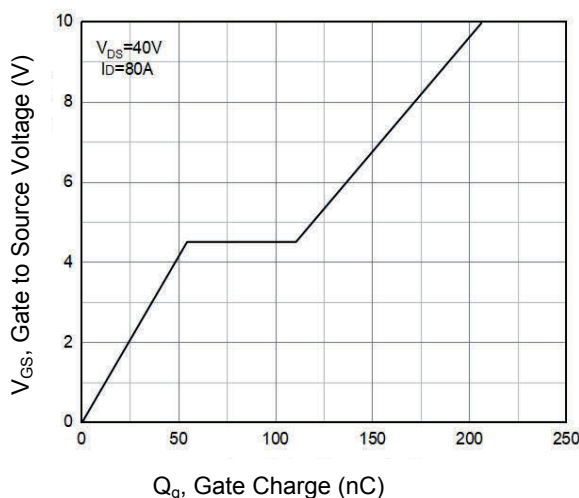


Figure 6. Gate Charge Characteristics

Typical Electrical and Thermal Characteristic Curves

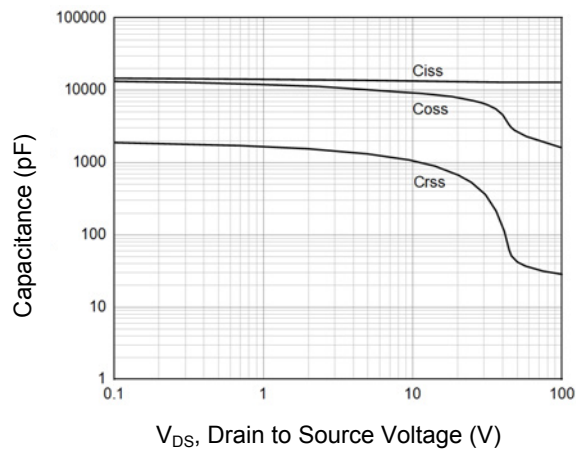


Figure 7. Capacitance Characteristics

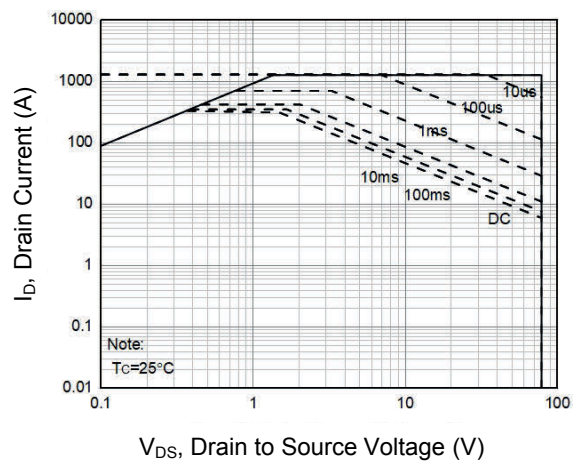
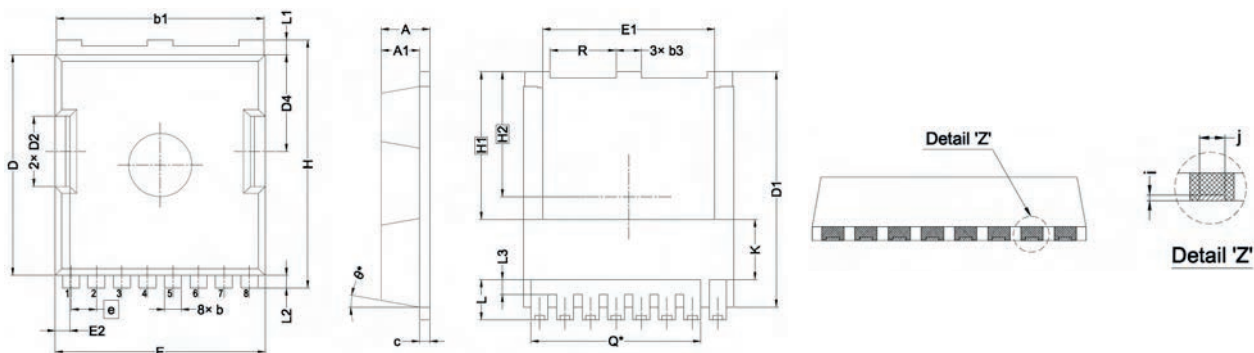


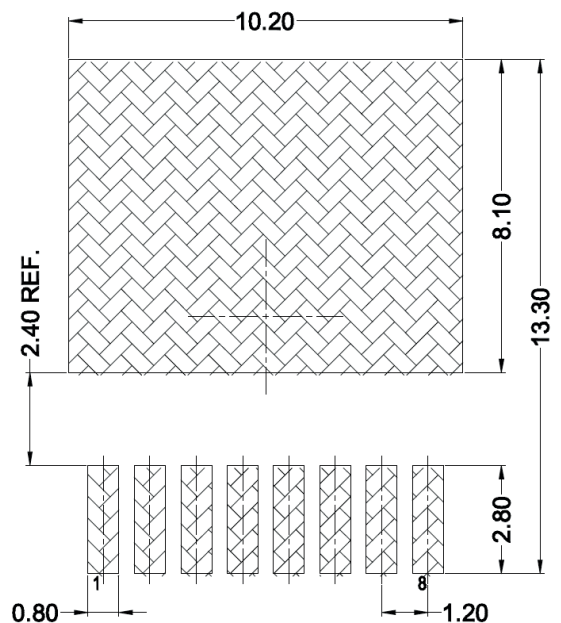
Figure 8. Typical Output Characteristics

Package Outline Dimensions (TOLL)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.20	2.40	0.087	0.094
A1	1.70	1.90	0.067	0.075
b	0.70	0.90	0.028	0.035
b1	9.70	9.90	0.382	0.390
b3	1.10	1.30	0.043	0.051
c	0.40	0.60	0.016	0.024
D	10.28	10.48	0.405	0.413
D1	10.98	11.18	0.432	0.440
D2	3.20	3.40	0.126	0.134
D4	4.45	4.65	0.175	0.183
E	9.80	10.00	0.386	0.394
E1	8.00	8.20	0.315	0.323
E2	0.60	0.80	0.024	0.031
e	1.20 BSC		0.047 BSC	
H	11.58	11.78	0.456	0.464
H1	6.95 BSC		0.274 BSC	
H2	5.89 BSC		0.232 BSC	
i	0.10 REF		0.004 REF	
j	0.46 REF		0.018 REF	
K	2.80 REF		0.110 REF	
L	1.40	2.10	0.055	0.083
L1	0.60	0.80	0.024	0.031
L2	0.50	0.70	0.020	0.028
L3	0.30	0.80	0.012	0.031
Q	8.00 REF		0.315 REF	
R	3.00	3.20	0.118	0.126
θ	10° REF		10° REF	

Recommended Pad Layout



unit : mm

Order Information

Device	Package	Marking	Carrier	Quantity
GSGTL1R608AU	TOLL	TL1R608AU	Tape & Reel	2,000 Pcs / Reel