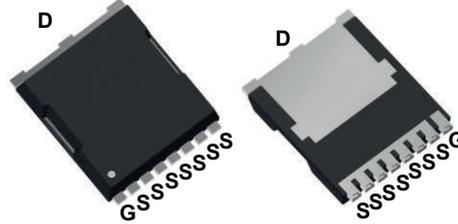
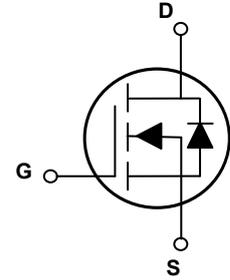


Main Product Characteristics

BV_{DSS}	80V
$R_{DS(ON)}$	2.4m Ω (max.)
I_D	240A



TOLL



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 GSGTL2R408 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	240	A
Drain Current-Continuous, @ Steady-State ($T_C=100^\circ\text{C}$)		168	
Drain Current-Pulsed ($T_C=25^\circ\text{C}$) ¹	I_{DM}	960	A
Single Pulse Avalanche Energy	E_{AS}	380	mJ
Single Pulse Avalanche Current	I_{AS}	39	A
Power Dissipation ($T_C=25^\circ\text{C}$) ²	P_D	200	W
Thermal Resistance, Junction-to-Ambient (PCB Mounted, Steady-State)	$R_{\theta JA}$	50	$^\circ\text{C/W}$
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	0.63	$^\circ\text{C/W}$
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_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 =40A	-	2.0	2.4	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 =50A, V _{GS} =10V	-	95	-	nC
Gate-Source Charge ^{3,4}	Q _{gs}		-	37	-	
Gate-Drain ("Miller") Charge ^{3,4}	Q _{gd}		-	17	-	
Gate to Plateau ^{3,4}	V _{plateau}		-	5.5	-	V
Turn-On Delay Time ^{3,4}	t _{d(on)}	V _{DD} =40V, R _G =3Ω, V _{GS} =10V, I _D =50A	-	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	-	6022	-	pF
Output Capacitance	C _{oss}		-	846	-	
Reverse Transfer Capacitance	C _{rss}		-	37	-	
Gate Resistance	R _g	F=1MHz	-	3.4	-	Ω
Source-Drain Ratings and Characteristics						
Continuous Source Current (Body Diode)	I _S	MOSFET symbol showing the integral reverse p-n junction diode.	-	-	240	A
Pulsed Source Current	I _{S, pulse}		-	-	960	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 =40A, di _F /dt=100A/μs	-	39	-	nS
Reverse Recovery Charge ³	Q _{rr}		-	80	-	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

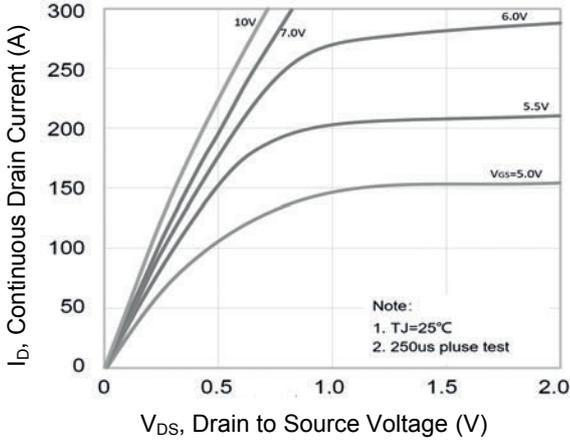


Figure 1. Typical Output Characteristics

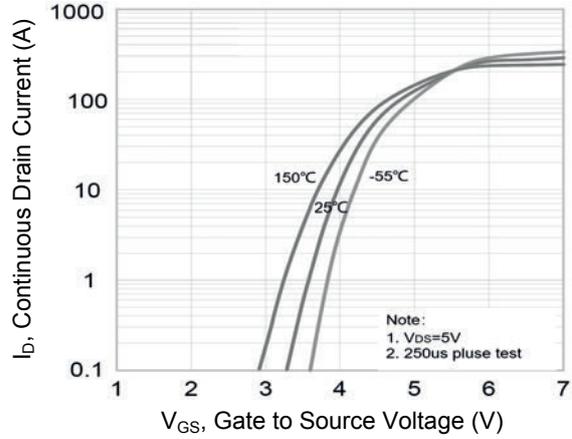


Figure 2. Transfer Characteristics

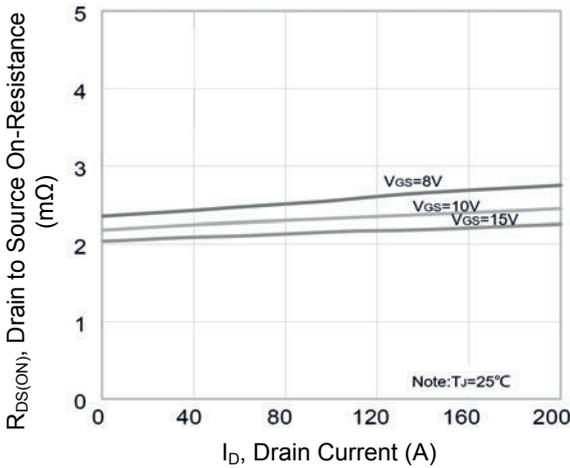


Figure 3. $R_{DS(ON)}$ Vs. Drain Current

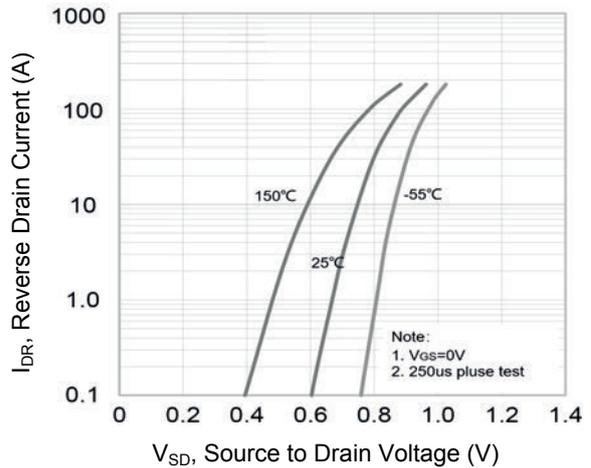


Figure 4. Body Diode Characteristics

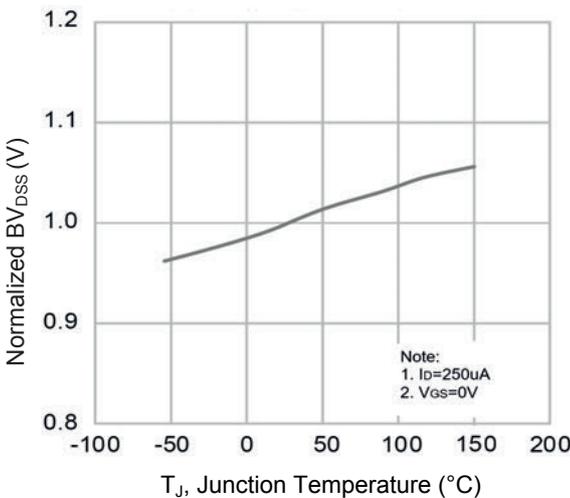


Figure 5. Normalized BV_{DSS} Vs. T_J

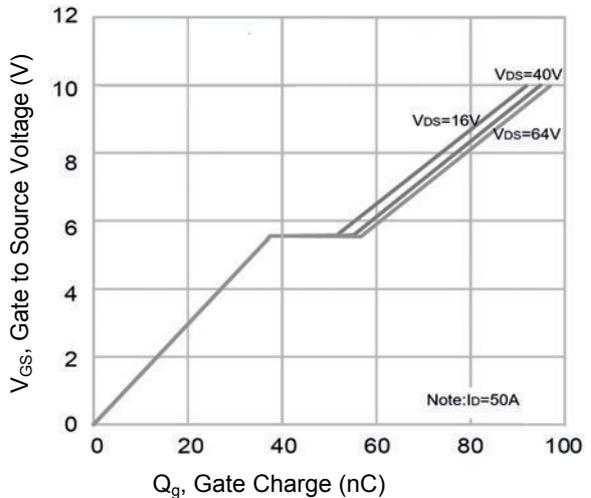


Figure 6. Gate Charge Characteristics

Typical Electrical and Thermal Characteristic Curves

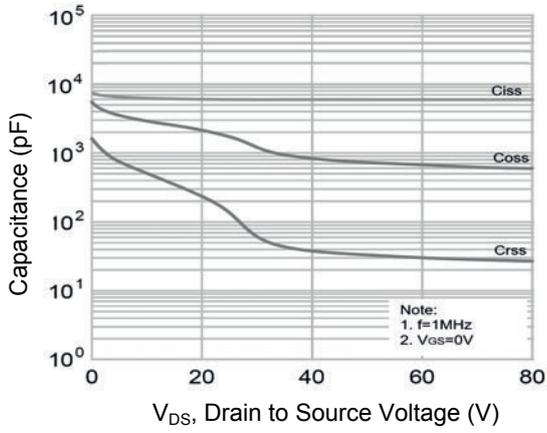


Figure 7. Capacitance Characteristics

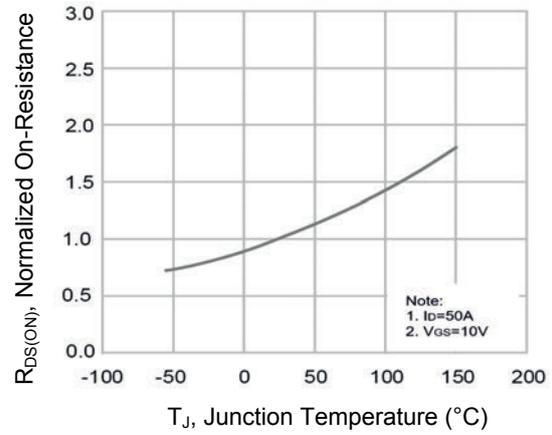
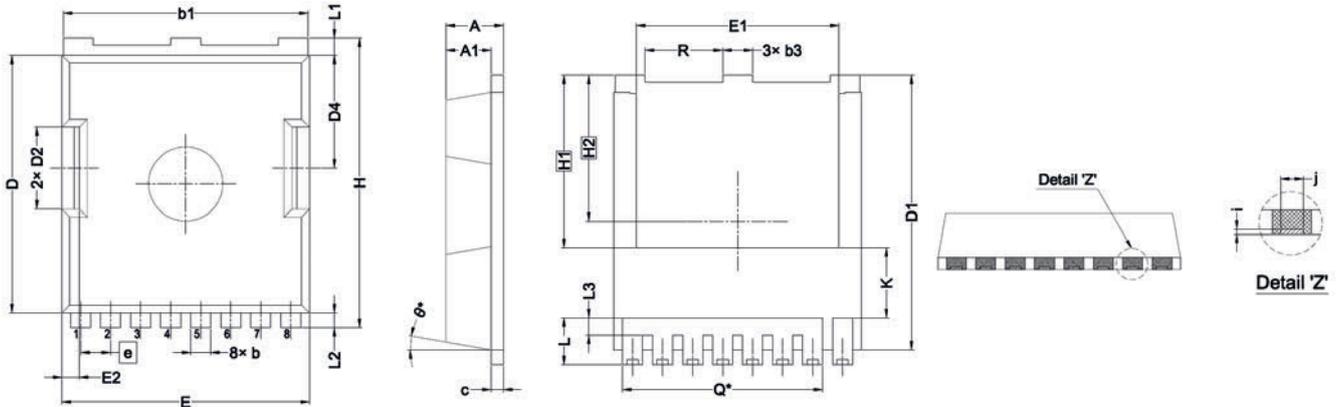


Figure 8. Normalized $R_{DS(ON)}$ Vs. T_J

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

