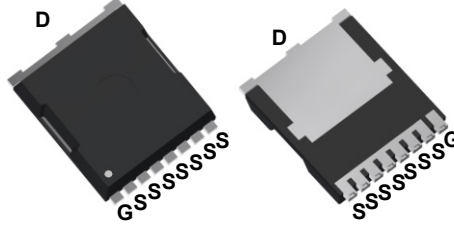
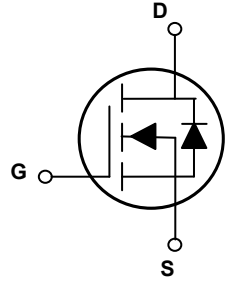


Main Product Characteristics

BV_{DSS}	100V
$R_{DS(ON)}$	2.7m Ω (Max)
I_D	200A



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 GSFTL2R710 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 ($T_C=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Max.	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current-Continuous, @ Steady-State ($T_C=25^\circ\text{C}$) ¹	I_D	200	A
Drain Current-Continuous, @ Steady-State ($T_C=100^\circ\text{C}$)		142	
Drain Current-Pulsed ²	I_{DM}	800	A
Single Pulse Avalanche Energy ³	E_{AS}	961	mJ
Power Dissipation ($T_C=25^\circ\text{C}$)	P_D	278	W
Linear Derating Factor ($T_C=25^\circ\text{C}$)		2.2	
Thermal Resistance, Junction-to-Ambient (PCB Mounted, Steady-State) ⁴	$R_{\theta JA}$	50	$^\circ\text{C/W}$
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	0.45	$^\circ\text{C/W}$
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 ($T_C=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
On / Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	100	-	-	V
Drain-Source Leakage Current	I_{DSS}	$V_{DS}=100V, V_{GS}=0V$	-	-	1	μA
		$T_J=125^\circ C$	-	-	20	μA
Gate-Source Forward Leakage	I_{GSS}	$V_{GS}=\pm 20V$	-	-	± 100	nA
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=60A$	-	2.2	2.7	m Ω
Gate Threshold Voltage	$V_{GS(th)}$	$V_{GS}=V_{DS}, I_D=250\mu A$	2.1	3	3.9	V
Dynamic and Switching Characteristics						
Total Gate Charge	Q_g	$V_{DS}=50V, I_D=90A, V_{GS}=10V$	-	165	-	nC
Gate-Source Charge	Q_{gs}		-	61	-	
Gate-Drain ("Miller") Charge	Q_{gd}		-	40	-	
Turn-On Delay Time	$t_{d(on)}$	$V_{DS}=50V, R_G=3\Omega, V_{GS}=10V, I_D=90A$	-	33	-	nS
Rise Time	t_r		-	46	-	
Turn-Off Delay Time	$t_{d(off)}$		-	119	-	
Fall Time	t_f		-	44	-	
Input Capacitance	C_{iss}	$V_{DS}=50V, V_{GS}=0V, F=1MHz$	-	10430	-	pF
Output Capacitance	C_{oss}		-	1263	-	
Reverse Transfer Capacitance	C_{rss}		-	35	-	
Gate Resistance	R_g	$F=1MHz$	-	2.2	-	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.	-	-	200	A
Pulsed Source Current (Body Diode)	I_{SM}		-	-	800	A
Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=60A$	-	1	1.2	V
Reverse Recovery Time	t_{rr}	$T_J=25^\circ C, I_F=90A, di/dt=100A/\mu s$	-	85	-	nS
Reverse Recovery Charge	Q_{rr}		-	0.26	-	μC

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. $L=0.5mH, V_{DD}=80V, I_{AS}=62A, T_J=25^\circ C$.
4. Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch.

Typical Electrical and Thermal Characteristic Curves

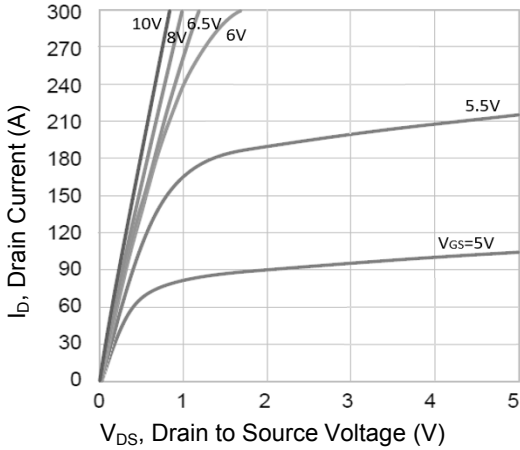


Figure 1. Typical Output Characteristics

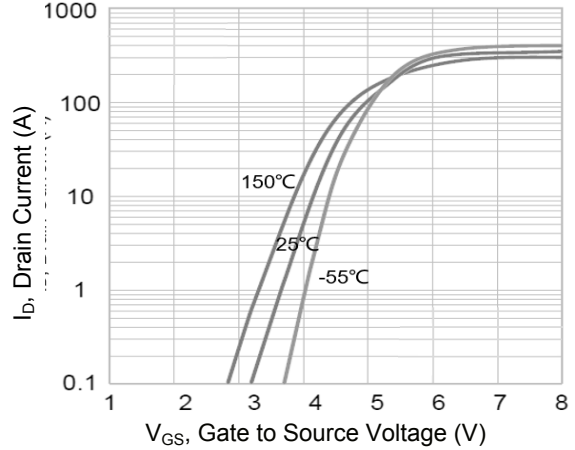


Figure 2. Transfer Characteristics

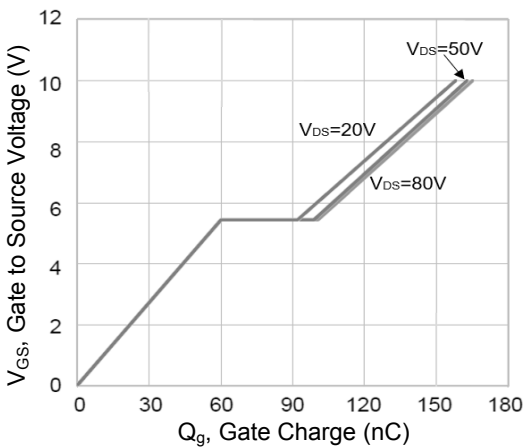


Figure 3. Gate Charge Characteristics

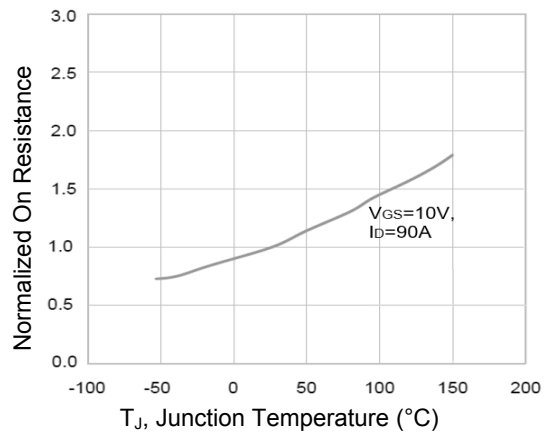


Figure 4. Normalized $R_{DS(ON)}$ vs. T_J

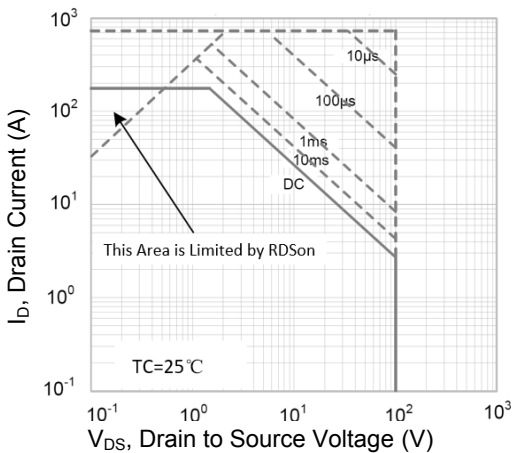


Figure 5. Safe Operation Area

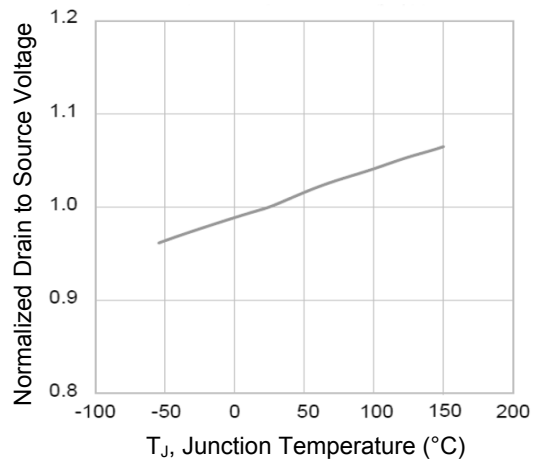


Figure 6. Normalized BV_{DSS} vs. T_J

Typical Electrical and Thermal Characteristic Curves

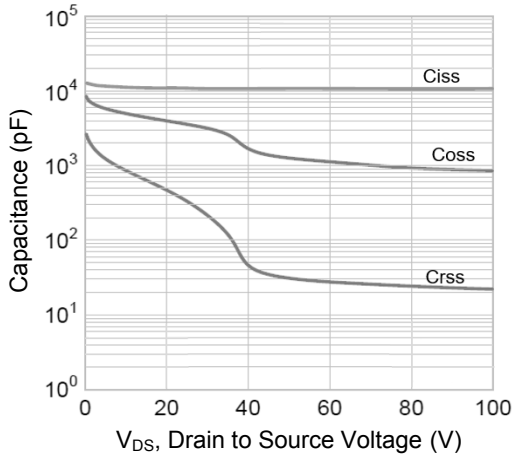


Figure 7. Capacitance Characteristics

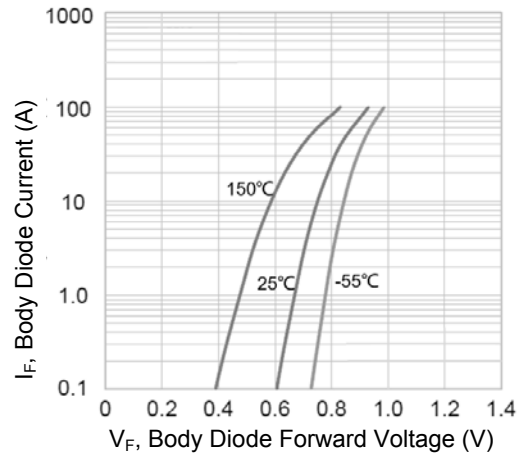
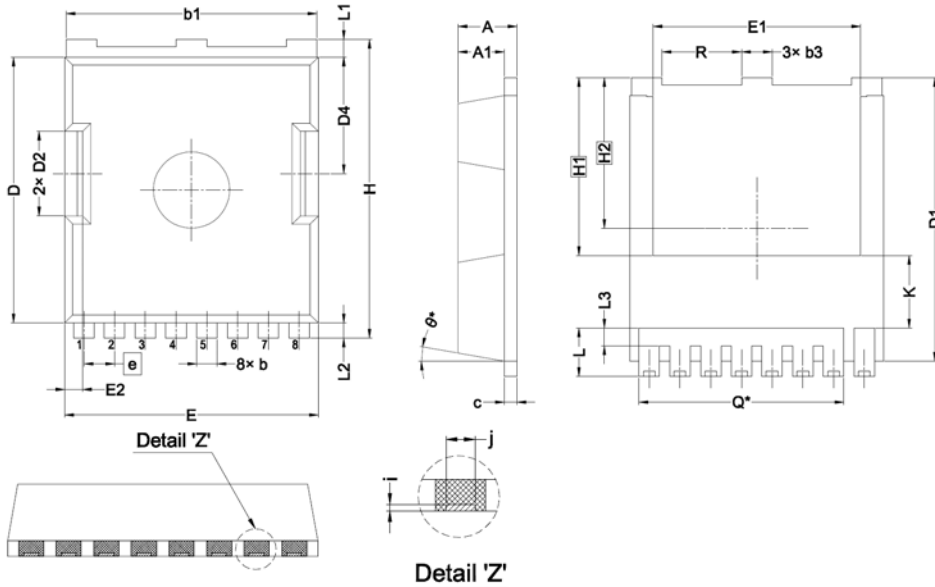


Figure 8. Body Diode Characteristics

Package Outline Dimensions (TOLL)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	2.200	2.400	0.087	0.094
A1	1.700	1.900	0.067	0.075
b	0.700	0.900	0.028	0.035
b1	9.700	9.900	0.382	0.390
b3	1.100	1.300	0.043	0.051
c	0.400	0.600	0.016	0.024
D	10.280	10.480	0.405	0.413
D1	10.980	11.180	0.432	0.440
D2	3.200	3.400	0.126	0.134
D4	4.450	4.650	0.175	0.183
E	9.800	10.000	0.386	0.394
E1	8.000	8.200	0.315	0.323
E2	0.600	0.800	0.024	0.031
e	1.200 BSC		0.047 BSC	
H	11.580	11.780	0.456	0.464
H1	6.950 BSC		0.274 BSC	
H2	5.890 BSC		0.232 BSC	
i	0.100 REF		0.004 REF	
j	0.460 REF		0.018 REF	
K	2.800 REF		0.110 REF	
L	1.400	2.100	0.055	0.083
L1	0.600	0.800	0.024	0.031
L2	0.500	0.700	0.020	0.028
L3	0.300	0.800	0.012	0.031
Z	8.000		0.315	
Q	8.000 REF		0.315 REF	
R	3.000	3.200	0.118	0.126
θ	10° REF		10° REF	