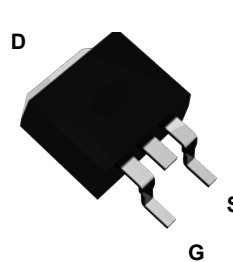
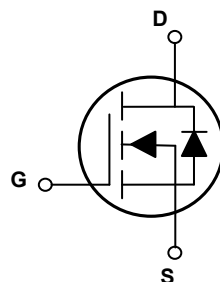


Main Product Characteristics

$V_{(BR)DSS}$	650V
$R_{DS(ON)}$	0.11 Ω (Max.)
I_D	35A



TO-263 (D²PAK)



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 GSGT65RF110AU 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}	650	V
Gate-to-Source Voltage	V_{GS}	± 30	V
Continuous Drain Current, @ Steady-State ($T_C=25^{\circ}\text{C}$)	I_D	35	A
Continuous Drain Current, @ Steady-State ($T_C=100^{\circ}\text{C}$)		12	A
Pulsed Drain Current	I_{DM}	140	A
Power Dissipation ($T_C=25^{\circ}\text{C}$)	P_D	245	W
		1.96	W/ $^{\circ}\text{C}$
Single Pulse Avalanche Energy ¹	E_{AS}	1136	mJ
Body Diode Reverse Voltage Slope ²	dv/dt	50	V/ns
MOS dv/dt Ruggedness ³	dv/dt	50	V/ns
Thermal Resistance, Junction-to-Ambient (PCB Mounted, Steady-State)	$R_{\theta JA}$	62.5	$^{\circ}\text{C/W}$
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	0.51	$^{\circ}\text{C/W}$
Operating Junction and Storage Temperature Range	T_J/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-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	650	-	-	V
Drain-to-Source Leakage Current	I_{DSS}	$V_{DS}=650V, V_{GS}=0V$	-	-	1	μA
Gate-to-Source Forward Leakage	I_{GSS}	$V_{DS}=0V, V_{GS}=20V$	-	-	100	nA
		$V_{DS}=0V, V_{GS}=-20V$	-	-	-100	
Static Drain-to-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=17A$	-	90	110	m Ω
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	3.1	-	4.9	V
Dynamic and Switching Characteristics						
Input Capacitance	C_{iss}	$V_{GS}=0V, V_{DS}=100V, f=1MHz$	-	3011	-	pF
Output Capacitance	C_{oss}		-	84	-	
Reverse Transfer Capacitance	C_{rss}		-	5.5	-	
Total Gate Charge ^{4,5}	Q_g	$I_D=19A, V_{DD}=480V, V_{GS}=10V$	-	81	-	nC
Gate-to-Source Charge ^{4,5}	Q_{gs}		-	28	-	
Gate-to-Drain ("Miller") Charge ^{4,5}	Q_{gd}		-	42	-	
Gate-to-Plateau Voltage ^{4,5}	$V_{plateau}$		-	8.4	-	V
Turn-On Delay Time ^{4,5}	$T_{d(on)}$	$V_{DD}=400V, V_{GS}=10V, R_G=1.8\Omega, I_D=19A$	-	24	-	nS
Rise Time ^{4,5}	T_r		-	27	-	
Turn-Off Delay Time ^{4,5}	$T_{d(off)}$		-	59	-	
Fall Time ^{4,5}	T_f		-	23	-	
Gate Resistance	R_g	$f=1MHz$	-	1.82	-	Ω
Drain-Source Diode Characteristics and Maximum Ratings						
Continuous Source Current (Body Diode)	I_S	$T_C=25^\circ\text{C}$, MOSFET symbol showing the integral reverse p-n junction diode.	-	-	35	A
Source Pulse Current	I_{SM}		-	-	140	A
Diode Forward Voltage	V_{SD}	$I_S=19A, V_{GS}=0V$	-	1.1	1.4	V
Reverse Recovery Time	t_{rr}	$I_F=19A, V_{DD}=400V, di_F/dt=100A/\mu s$	-	104	-	nS
Reverse Recovery Charge	Q_{rr}		-	0.46	-	μC
Reverse Recovery Current	I_{rrm}		-	8	-	A

Note:

1. $L=79mH, V_{DD}=100V, R_G=25\Omega$, starting temperature $T_J=25^\circ\text{C}$.
2. $V_{DS}=0-400V, I_{SD}\leq I_S, T_J=25^\circ\text{C}$.
3. $V_{DS}=0-480V$.
4. Pulse test: Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
5. Essentially independent of operating temperature.

Typical Electrical and Thermal Characteristic Curves

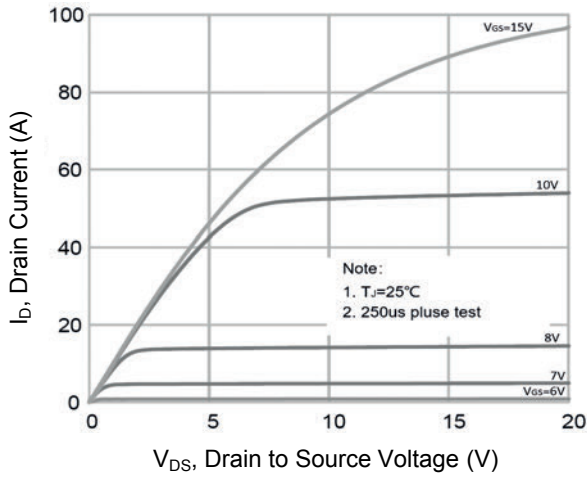


Figure 1. Typical Output Characteristics

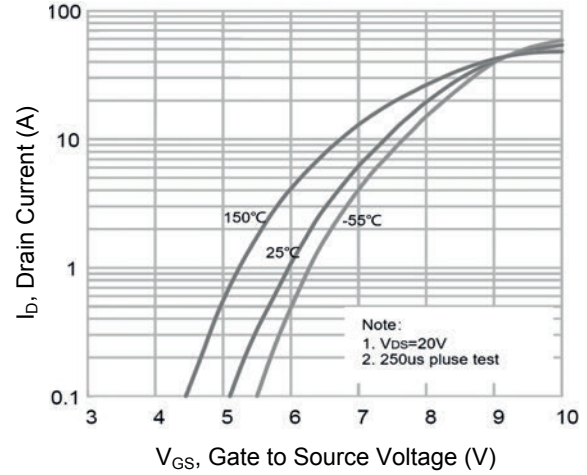


Figure 2. Transfer Characteristics

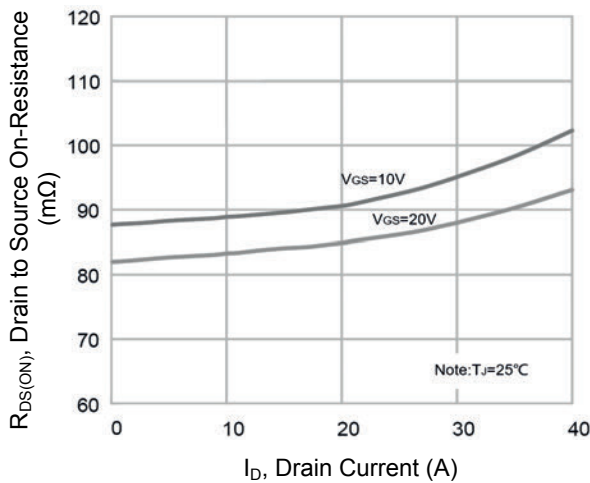


Figure 3. $R_{DS(ON)}$ vs. Drain Current

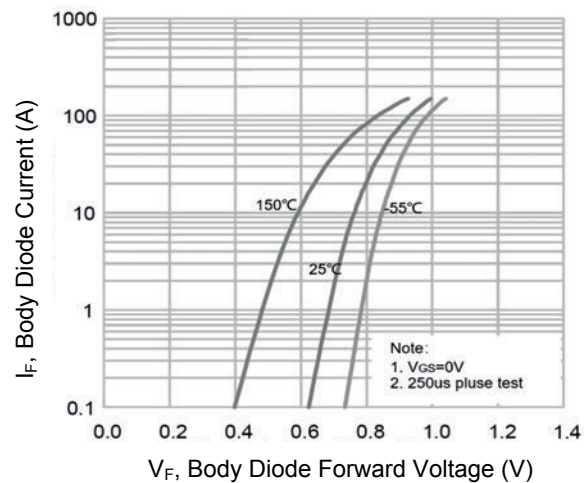


Figure 4. Body Diode Characteristics

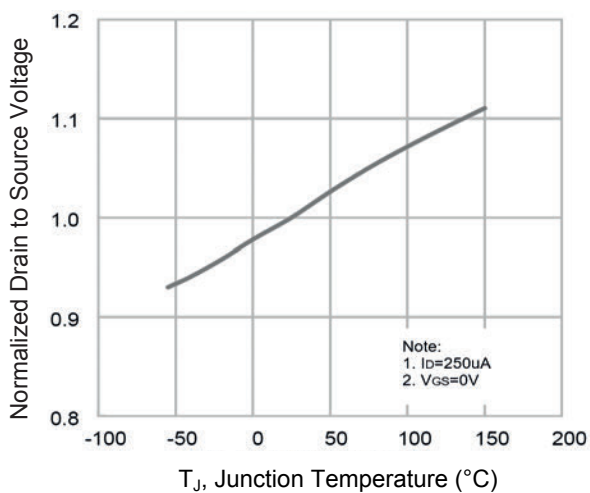


Figure 5. Normalized BV_{DSS} vs. T_J

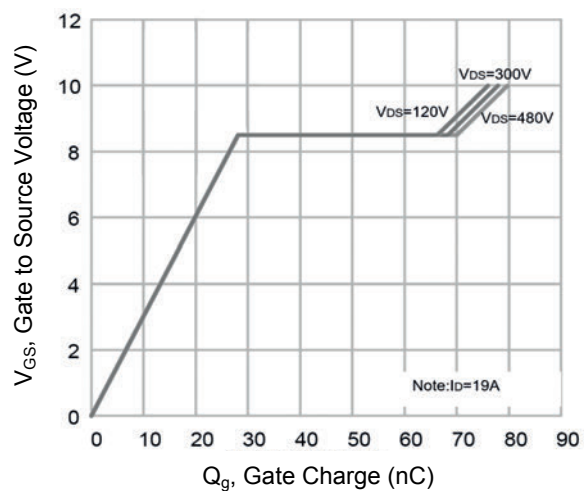


Figure 6. Gate Charge

Typical Electrical and Thermal Characteristic Curves

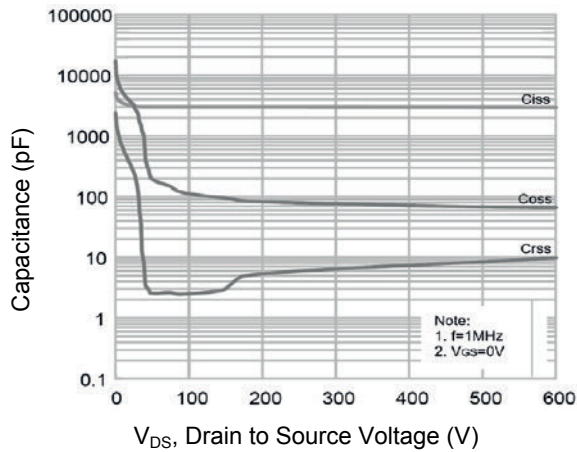


Figure 7. Capacitance Characteristics

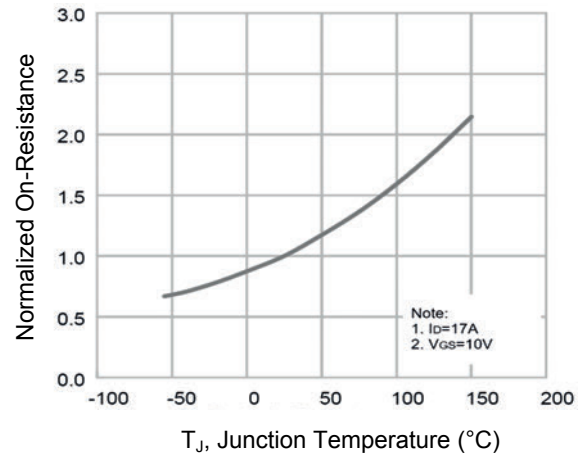


Figure 8. Normalized $R_{DS(ON)}$ vs. T_J

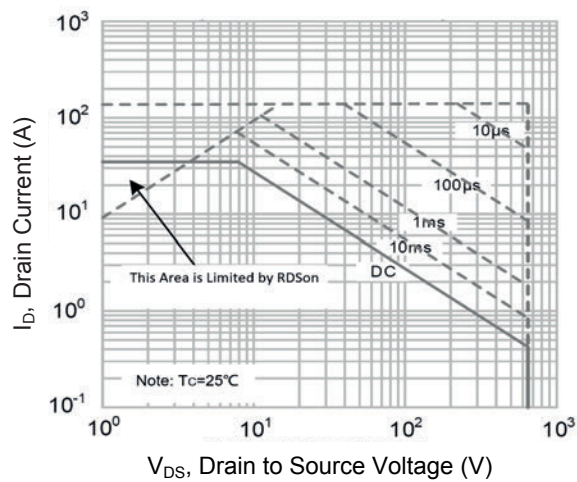
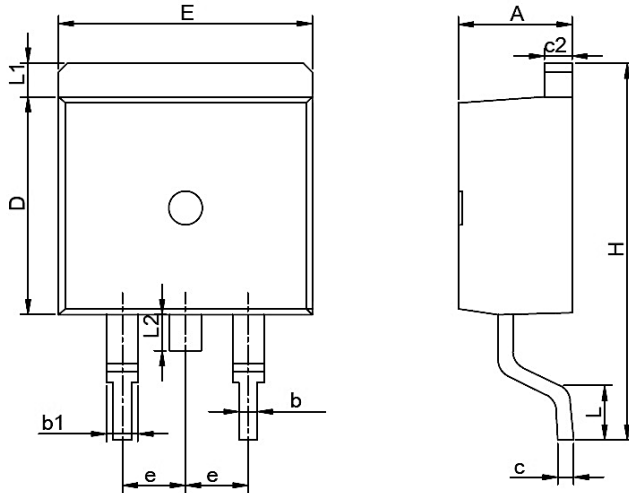


Figure 9. Safe Operation Area

Package Outline Dimensions TO-263 (D²PAK)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	4.30	4.90	0.169	0.193
b	0.70	0.95	0.028	0.037
b1	1.07	1.50	0.042	0.059
c	0.28	0.60	0.011	0.024
c2	1.17	1.37	0.046	0.054
D	8.40	9.35	0.331	0.368
E	9.80	10.45	0.386	0.411
e	2.54 BSC		0.100 BSC	
H	14.70	16.30	0.579	0.642
L	2.00	3.80	0.079	0.150
L1	0.97	1.42	0.038	0.056
L2	-	1.75	-	0.069

Order Information

Device	Package	Marking	Carrier	Quantity
GSGT65RF110AU	TO-263 (D2PAK)	T65RF110	Tape & Reel	800 Pcs / Reel