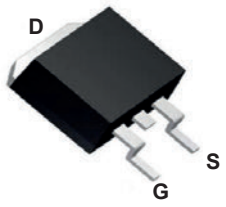
GOOD-ARK SEMICONDUCTOR

GSJT65RF110

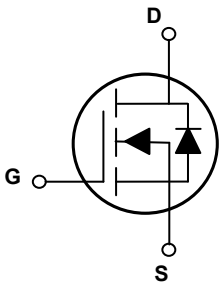
650V N-Channel MOSFET

Main Product Characteristics

$V_{(BR)DSS}$	650V
$R_{DS(ON)}$	110mΩ (Max.)
I_D	35A



TO-263



Schematic Diagram

Features and Benefits

- Advanced MOSFET process te chnology
- Ideal for high efficiency switched mode power supplies
- Low on-resistance with low gate charge
- Fast switching and reverse body recovery

Description

The GSJT65RF110 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°C unless otherwise specified)

Parameter	Symbol	Parameter	Unit
Drain-Source Voltage	V_{DS}	650	V
Gate-to-Source Voltage	V_{GS}	±30	V
Continuous Drain Current, @ Steady-State (T_C=25°C)	I_D	35	A
Continuous Drain Current, @ Steady-State (T_C=100°C)		12	A
Pulsed Drain Current	I_{DM}	140	A
Power Dissipation (T_C=25°C)	P_D	245	W
		1.96	W/°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
Junction-to-Ambient (PCB Mounted, Steady-State)	$R_{\theta JA}$	62.5	°C/W
Junction-to-Case	$R_{\theta JC}$	0.51	°C/W
Operating Junction and Storage Temperature Range	T_J/T_{STG}	-55 to + 150	°C

Electrical Characteristics (T_C=25°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=250μA	650	-	-	V
Drain-to-Source Leakage Current	I_{DSS}	V_{DS}=650V, V_{GS}=0V	-	-	1	uA
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	mΩ
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	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=1.8Ω, 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
Source-Drain Ratings and Characteristics						
Continuous Source Current (Body Diode)	I_S	T_C=25°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/us	-	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=25Ω, starting temperature T_J=25°C.
2. V_{DS}=0-400V, I_{SD}<=I_S, T_J=25°C.
3. V_{DS}=0-480V.
4. Pulse test: pulse width ≤ 300μs, duty cycle ≤ 2%.
5. Essentially independent of operating temperature.

Typical Electrical and Thermal Characteristic Curves

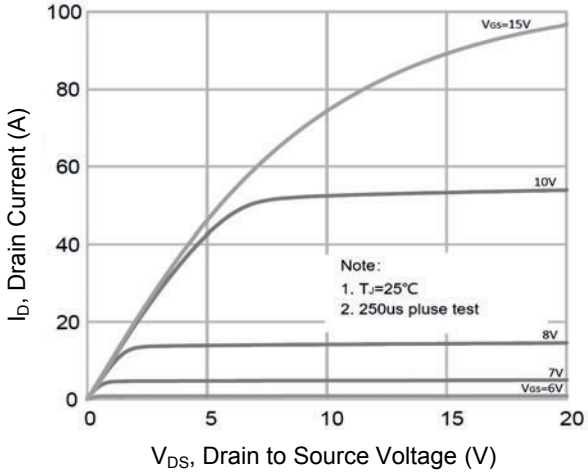


Figure 1. Typical Output Characteristics

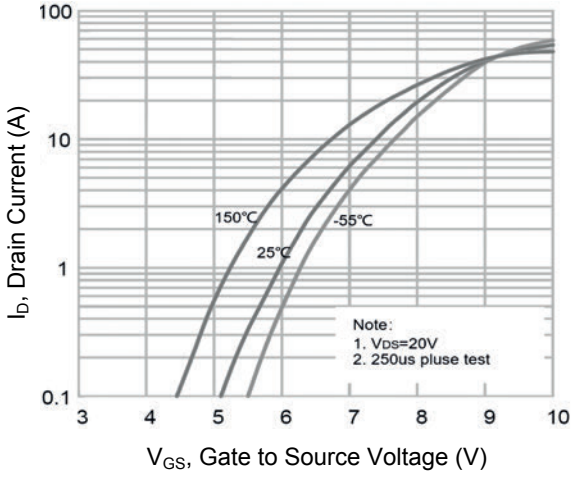


Figure 2. Transfer Characteristics

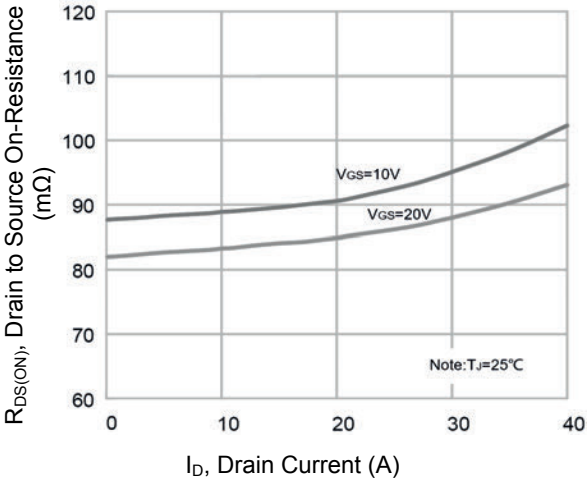


Figure 3. $R_{DS(ON)}$ Vs. Drain Current

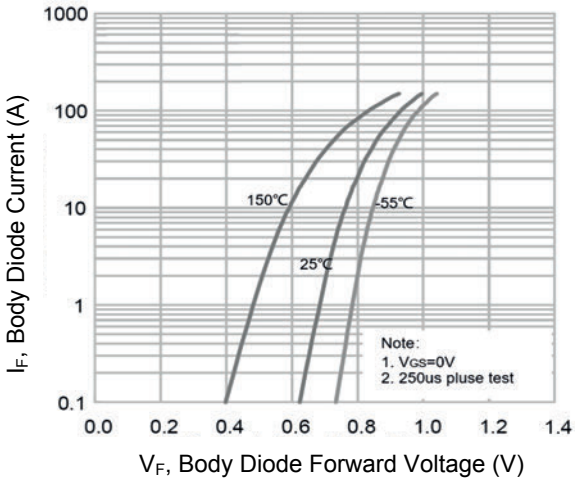


Figure 4. Body Diode Characteristics

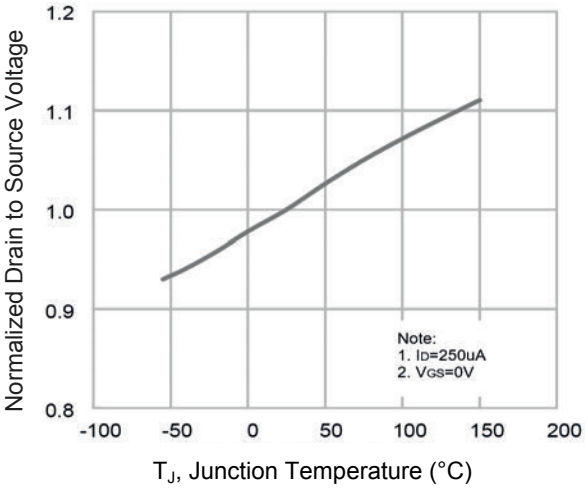


Figure 5. Normalized BV_{DSS} Vs. T_J

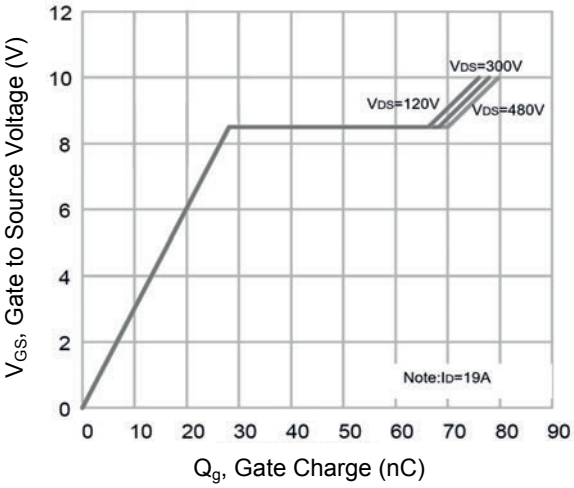


Figure 6. Gate Charge

Typical Electrical and Thermal Characteristic Curves

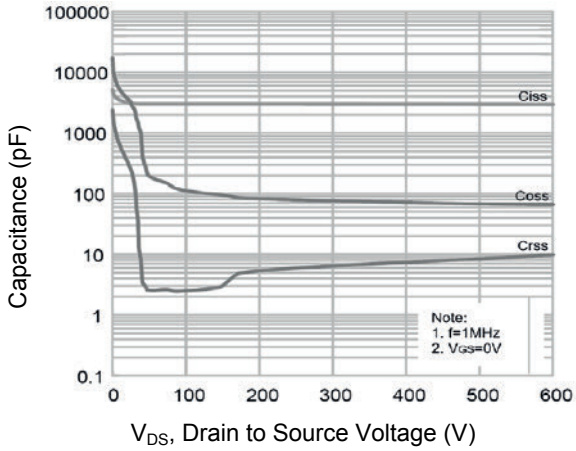


Figure 7. Capacitance Characteristics

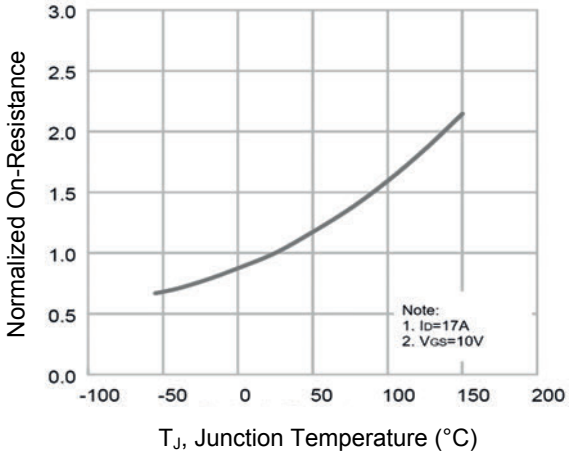


Figure 8. Normalized $R_{DS(ON)}$ Vs. T_J

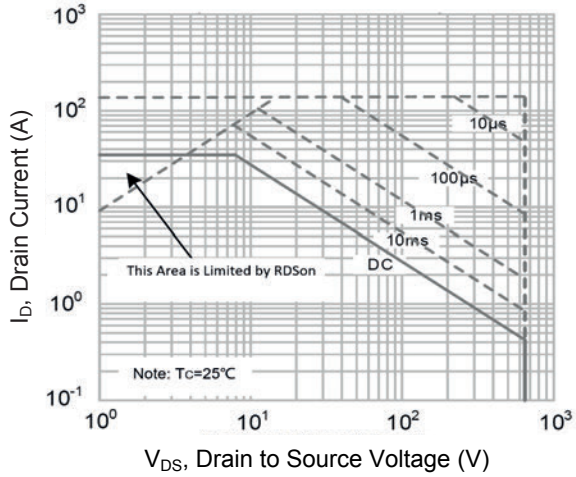
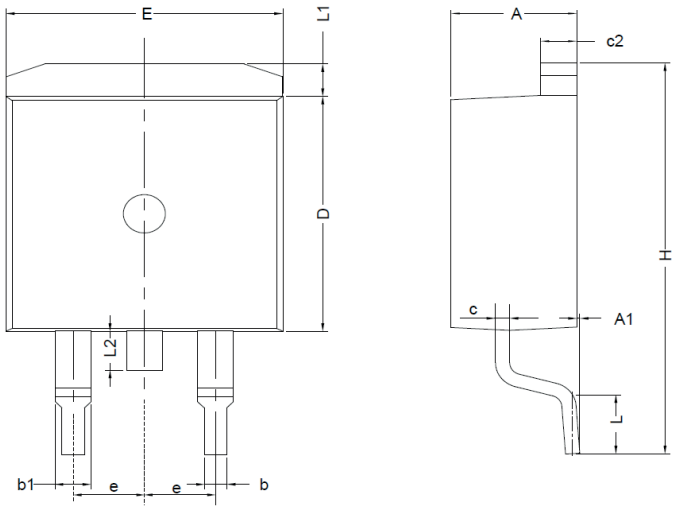


Figure 9. Safe Operation Area

Package Outline Dimensions (TO-263)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	4.30	4.72	0.169	0.186
A1	0.00	0.25	0.000	0.010
b	0.71	0.91	0.028	0.036
b1	1.17	1.50	0.046	0.059
c	0.30	0.60	0.012	0.024
c2	1.17	1.37	0.046	0.054
D	8.50	9.35	0.335	0.368
E	9.80	10.45	0.386	0.411
e	2.54 BSC		0.100 BSC	
H	14.70	15.75	0.579	0.620
L	2.00	2.74	0.079	0.108
L1	1.12	1.42	0.044	0.056
L2	-	1.75	-	0.069

Order Information

Device	Package	Marking	Carrier	Quantity
GSJT65RF110	TO-263	T65RF110	Tape & Reel	800 pcs / Reel