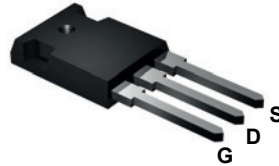
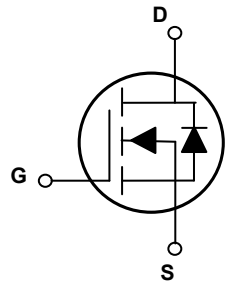


Main Product Characteristics

$V_{(BR)DSS}$	1500V
$R_{DS(ON)}$	6.5Ω (Max.)
I_D	4A



TO-247



Schematic Diagram

Features and Benefits

- Advance 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 GSJA4N150 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}	1500	V
Gate-to-Source Voltage	V_{GS}	±30	V
Continuous Drain Current, @ Steady-State ($T_C=25^{\circ}\text{C}$)	I_D	4	A
Continuous Drain Current, @ Steady-State ($T_C=100^{\circ}\text{C}$)		2.5	A
Pulsed Drain Current	I_{DM}	16	A
Power Dissipation ($T_C=25^{\circ}\text{C}$)	P_D	160	W
		1.28	W/ $^{\circ}\text{C}$
Single Pulse Avalanche Energy ¹	E_{AS}	485	mJ
Thermal Resistance, Junction-to-Ambient (PCB Mounted, Steady-State)	$R_{\theta JA}$	62.0	$^{\circ}\text{C/W}$
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	0.78	$^{\circ}\text{C/W}$
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 =250μA	1500	-	-	V
Drain-to-Source Leakage Current	I _{DSS}	V _{DS} =1500V, V _{GS} =0V	-	-	10	uA
Gate-to-Source Forward Leakage	I _{GSS}	V _{DS} =0V, V _{GS} =30V	-	-	500	nA
		V _{DS} =0V, V _{GS} =-30V	-	-	-500	
Static Drain-to-Source On-Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =1.3A	-	5.0	6.5	Ω
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	3.0	-	5.0	V
Dynamic and Switching Characteristics						
Input Capacitance	C _{iss}	V _{GS} =0V, V _{DS} =25V, f=1MHz	-	1033	-	pF
Output Capacitance	C _{oss}		-	90	-	
Reverse Transfer Capacitance	C _{rss}		-	12	-	
Total Gate Charge ^{2,3}	Q _g	I _D =4A, V _{DD} =1200V, V _{GS} =10V	-	40	-	nC
Gate-to-Source Charge ^{2,3}	Q _{gs}		-	8.8	-	
Gate-to-Drain ("Miller") Charge ^{2,3}	Q _{gd}		-	22	-	
Turn-On Delay Time ^{2,3}	t _{d(on)}	V _{DD} =750V, V _{GS} =10V, R _G =25Ω, I _D =4A	-	25	-	nS
Rise Time ^{2,3}	t _r		-	50	-	
Turn-Off Delay Time ^{2,3}	t _{d(off)}		-	85	-	
Fall Time ^{2,3}	t _f		-	45	-	
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.	-	-	4	A
Source Pulse Current	I _{SM}		-	-	16	A
Diode Forward Voltage	V _{SD}	I _S =4A, V _{GS} =0V	-	-	1.4	V
Reverse Recovery Time	T _{rr}	I _F =4A, V _{GS} =0V, dI _F /dt=100A/us	-	373	-	nS
Reverse Recovery Charge	Q _{rr}		-	2.4	-	μC

Notes:

1. $L=79mH, I_{AS}=3.4A, V_{DD}=100V, R_g=25\Omega$, starting temperature $T_J=25^\circ\text{C}$.
2. Pulse test: pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
3. Essentially independent of operating temperature.

Typical Electrical and Thermal Characteristic Curves

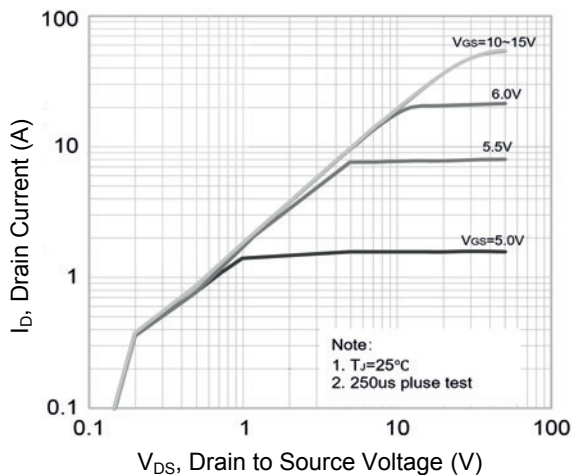


Figure 1. Typical Output Characteristics

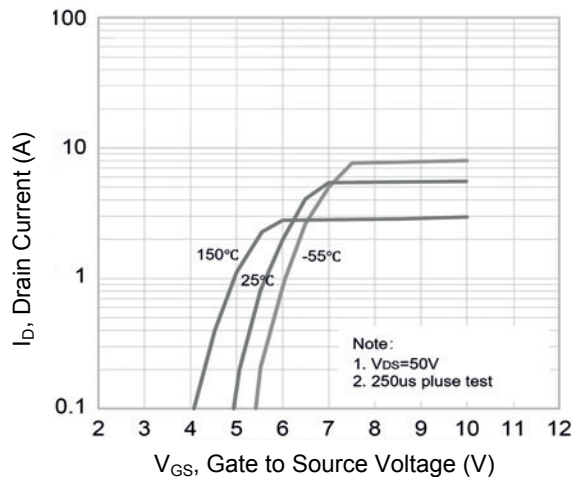


Figure 2. Transfer Characteristics

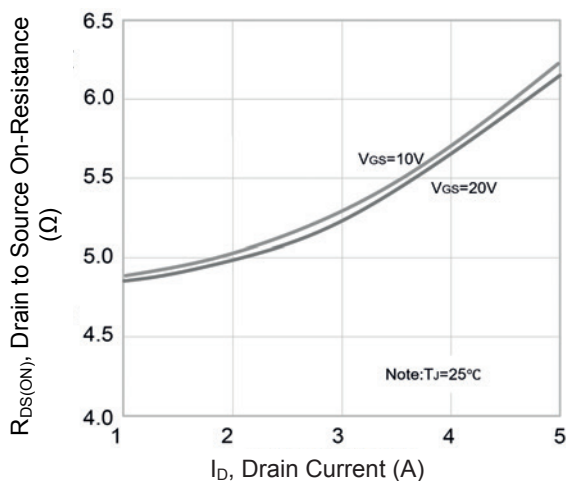


Figure 3. $R_{DS(on)}$ vs. Drain Current

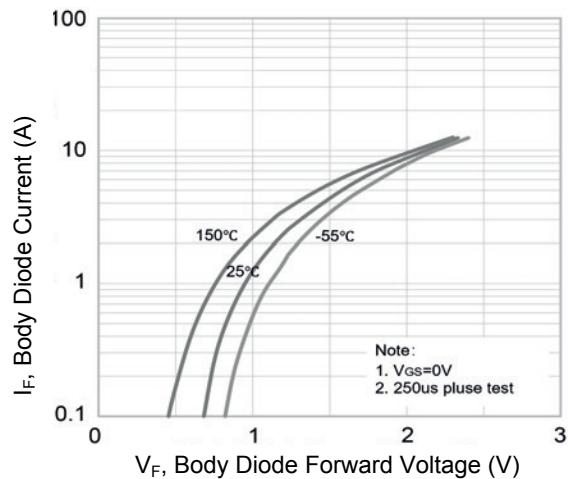


Figure 4. Body Diode Characteristics

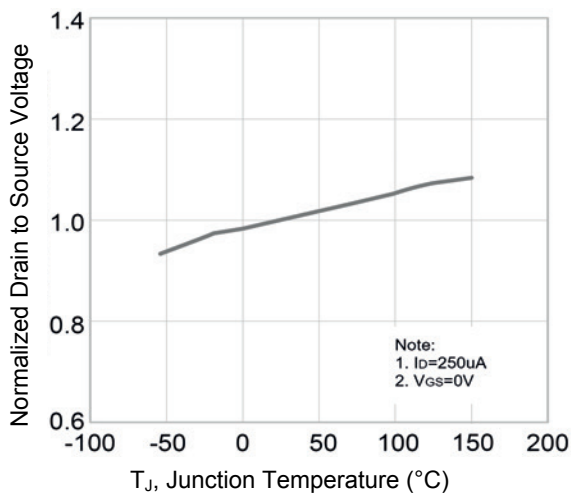


Figure 5. Normalized BV_{DSS} vs. T_J

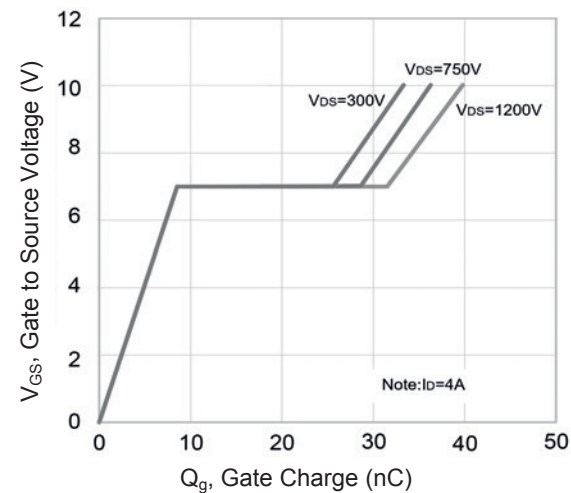


Figure 6. Gate Charge

Typical Electrical and Thermal Characteristic Curves

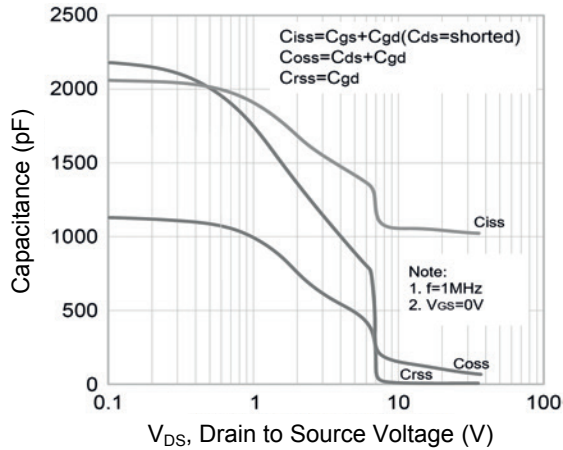


Figure 7. Capacitance Characteristics

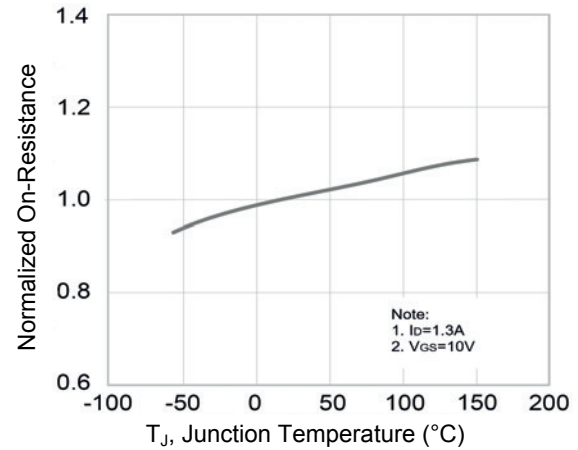


Figure 8. Normalized $R_{DS(ON)}$ vs. T_J

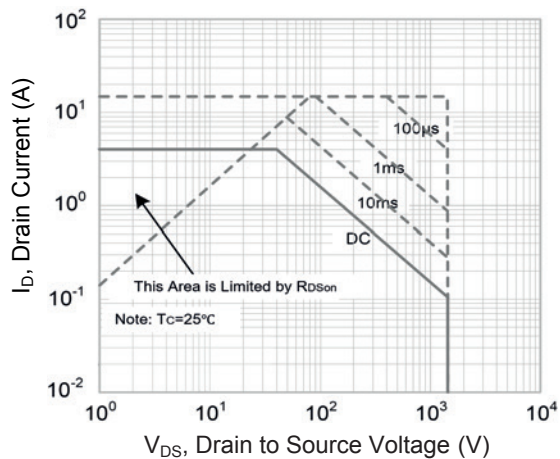
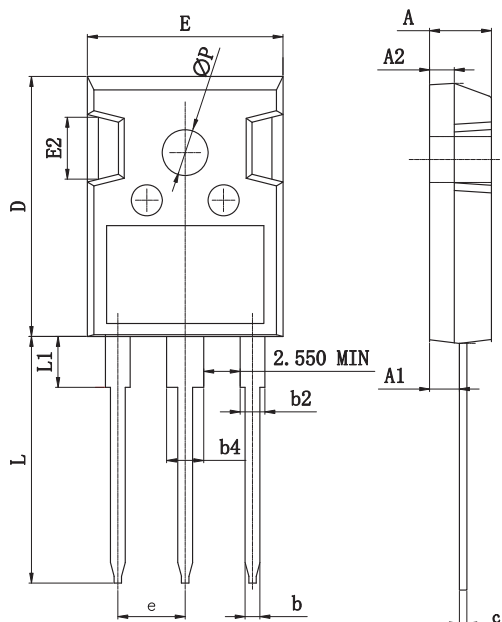


Figure 9. Safe Operation Area

Package Outline Dimensions (TO-247)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	4.75	5.20	0.187	0.205
A1	2.21	2.65	0.087	0.104
A2	1.85	2.15	0.073	0.085
b	1.00	1.36	0.039	0.054
b2	1.80	2.25	0.071	0.089
b4	2.91	3.25	0.115	0.128
c	0.51	0.75	0.020	0.030
D	20.80	21.30	0.819	0.839
E	15.50	16.10	0.610	0.634
E2	4.40	5.20	0.173	0.205
e	5.44 BSC		0.214 BSC	
L	19.72	20.22	0.776	0.796
L1	-	4.30	-	0.169
P	3.40	3.80	0.134	0.150

Order Information

Device	Package	Marking	Carrier	Quantity
GSJA4N150	TO-247	A4N150	Tube	30pcs / Tube