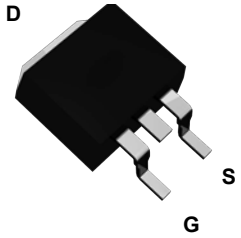
GOOD-ARK SEMICONDUCTOR

GSJT4N150

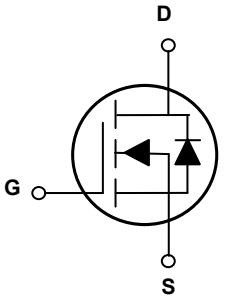
1500V N-Channel MOSFET

Main Product Characteristics

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



TO-263 (D^2PAK)



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 GSJT4N150 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	Max.	Unit
Drain-Source Voltage	V_{DS}	1500	V
Gate-Source Voltage	V_{GS}	±30	V
Drain Current-Continuous @ Steady-State (T_C=25°C)	I_D	4	A
Drain Current-Continuous @ Steady-State (T_C=100°C)		2.5	
Drain Current-Pulsed	I_{DM}	16	A
Power Dissipation (T_C=25°C)	P_D	160	W
		1.28	W/°C
Single Pulsed Avalanche Energy[1]	E_{AS}	485	mJ
Junction-to-Ambient, (PCB Mounted, Steady-State)	$R_{\theta JA}$	62	°C/W
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	0.78	°C/W
Junction Temperature Range	T_J	-55 To +150	°C
Storage Temperature Range	T_{STG}	-55 To +150	°C

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1500V N-Channel MOSFET

Electrical Characteristics (T_C=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=250uA	1500	-	-	V
Drain-Source Leakage Current	I_{DSS}	V_{DS}=1500V, V_{GS}=0V	-	-	10	μA
Gate-Source Leakage Current	I_{GSS}	V_{GS}=±30V,V_{DS}=0V	-	-	±500	nA
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=1.3A	-	5	6.5	Ω
Gate Threshold Voltage	$V_{GS(th)}$	V_{GS}=V_{DS}, I_D=250uA	3	-	5	V
Dynamic and Switching Characteristics						
Total Gate Charge[2,3]	Q_g	V_{DD}=1200V, I_D=4A, 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, R_G=25Ω, V_{GS}=10V, 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	-	
Input Capacitance	C_{lss}	V_{DS}=25V, V_{GS}=0V, F=100MHz	-	1033	-	pF
Output Capacitance	C_{oss}		-	90	-	
Reverse Transfer Capacitance	C_{rss}		-	12	-	
Drain-Source Diode Characteristics and Maximum Ratings						
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
Reverse Recovery Time	T_{rr}	V_{GS}=0V, I_F=4A, di_F/dt=100A/μs	-	373	-	nS
Reverse Recovery Charge	Q_{rr}		-	2.4	-	uC
Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_S=4A	-	-	1.4	V

Notes:

1. L=79mH, I_{AS}=3.4A, V_{DD}=100V, R_G=25Ω, starting temperature T_J=25°C.
2. Pulse test: Pulse width ≤ 300μs, duty dycle ≤ 2%.
3. Essentially independent of operating temperure.

Typical Electrical and Thermal Characteristic Curves

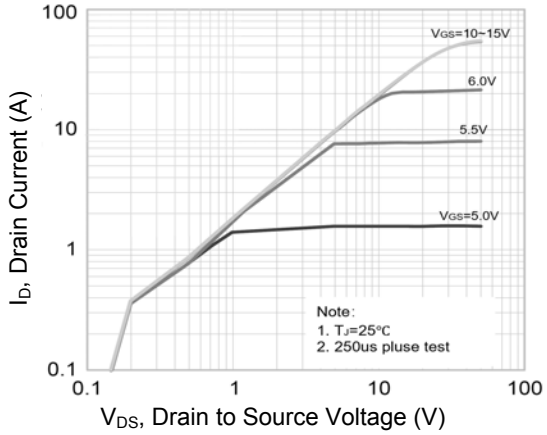


Figure 1. Output Characteristics

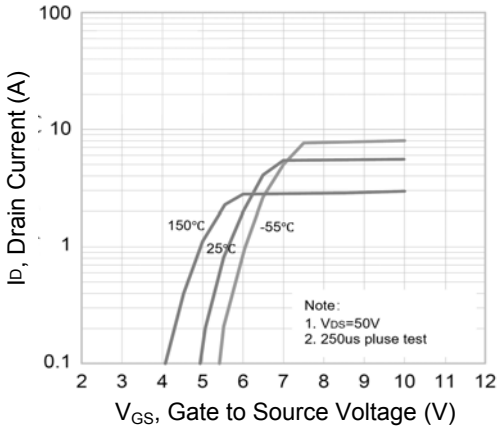


Figure 2. Transfer Characteristics

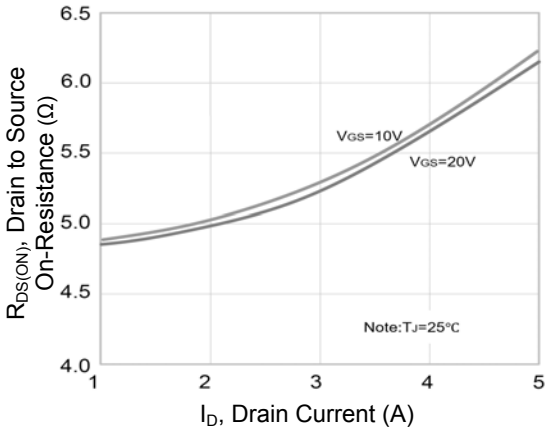


Figure 3. $R_{DS(ON)}$ vs. Drain Current

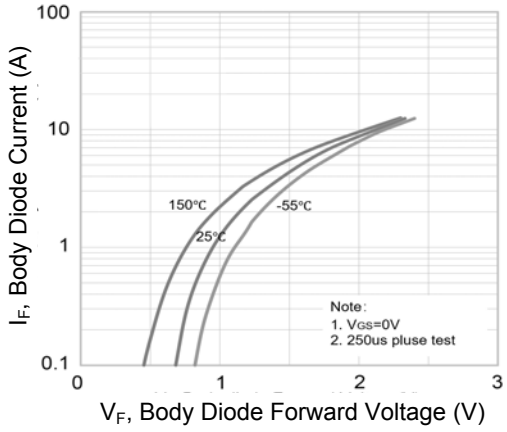


Figure 4. Body Diode Characteristics

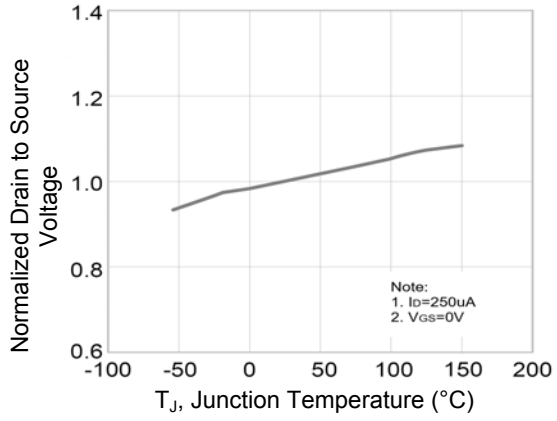


Figure 5. Normalized BVdss vs. T_J

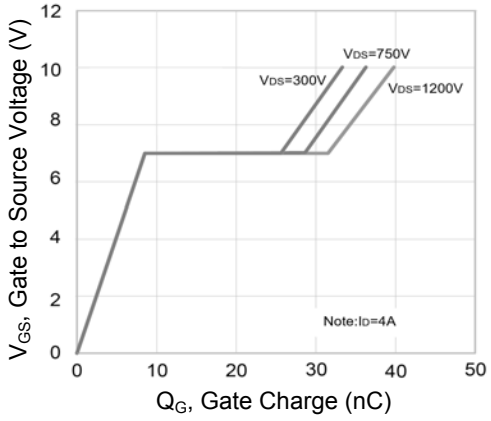


Figure 6. Gate Charge

Typical Electrical and Thermal Characteristic Curves

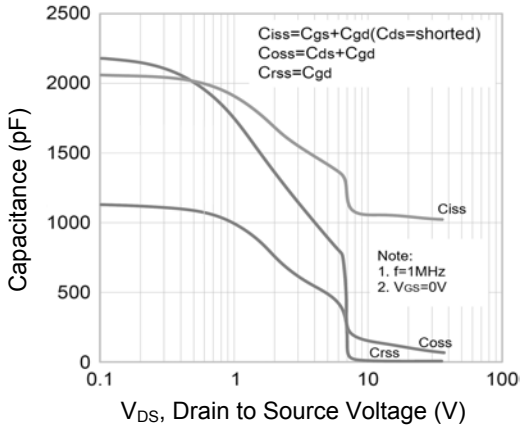


Figure 7. Capacitance Characteristic

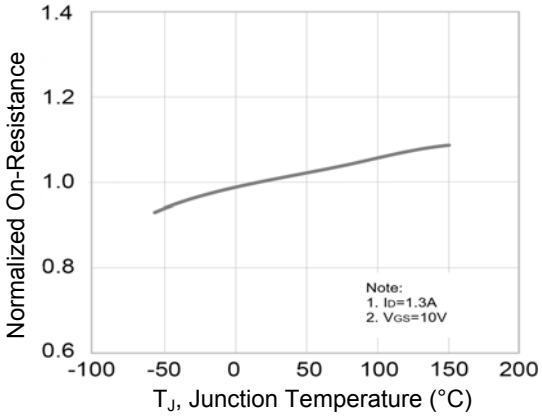


Figure 8. Normalized $R_{DS(ON)}$ vs. T_J

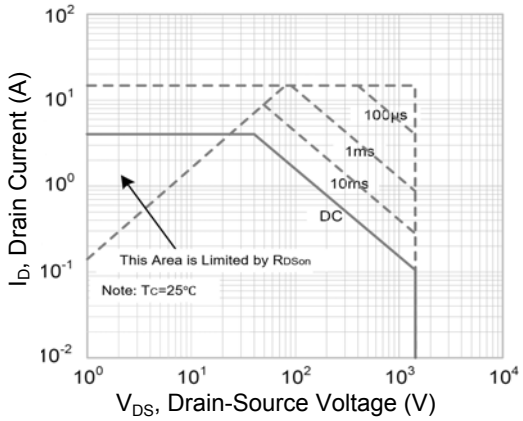
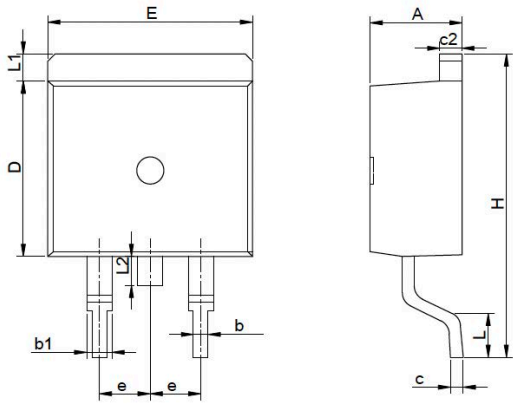


Figure 9. Safe Operation Area

Package Outline Dimensions (TO-263)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	4.300	4.900	0.169	0.193
b	0.700	0.950	0.028	0.037
b1	1.070	1.500	0.042	0.059
c	0.280	0.600	0.011	0.024
c2	1.170	1.370	0.046	0.054
D	8.400	9.350	0.331	0.368
E	9.800	10.450	0.386	0.411
e	2.540 BSC		0.100 BSC	
H	14.700	16.300	0.579	0.642
L	2.000	3.800	0.079	0.150
L1	0.970	1.420	0.038	0.056
L2	-	1.750	-	0.069

Order Information

Device	Package	Marking	Carrier	Quantity
GSJT4N150	TO-263	T4N150	Tape & Reel	800 Pcs / Reel