



80V N-Channel SGT Power MOSFET

General Description

The SJZ016N08 uses SGT technology to provide excellent $R_{DS(ON)}$, low gate charge and fast switching characteristics. This device is suitable for use as a wide variety of applications.

Features

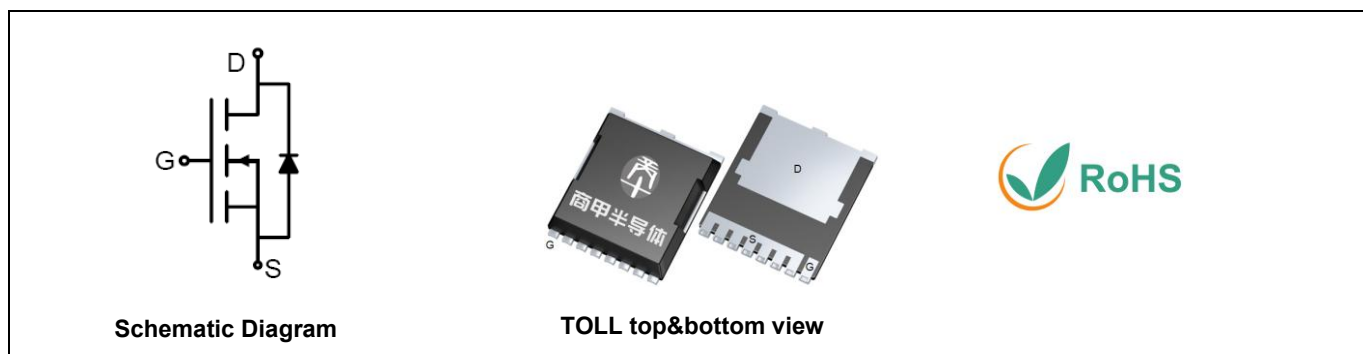
- Low Gate Charge
- 100% UIS Tested, 100% DVDS Tested
- High Power and current handling capability
- Lead free product is acquired

Application

- DC/DC Converter
- Load Switch
- Power Management

Key Performance Parameters

Parameter	Value	Unit
V_{DS}	80	V
$R_{DS(ON_TYP)}$	1.5	m Ω
I_D	250	A
Q_G	105	nC



Package Marking and Ordering Information

Device/Ordering Code	Marking	Package	Packing	Reel Size	Tape width	Quantity
SJZ016N08	SJZ016N08	TOLL	Tape	\	\	2000 Pcs

Table 1. Absolute Maximum Ratings ($T_C=25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Limit	Unit
V_{DS}	Drain-Source Voltage ($V_{GS}=0V$)	80	V
V_{GS}	Gate-Source Voltage ($V_{DS}=0V$)	± 20	V
I_D	Drain Current-Continuous($T_C=25^\circ\text{C}$)	250	A
	Drain Current-Continuous($T_C=100^\circ\text{C}$)	158	A
I_{DM} (pluse)	Drain Current-Continuous@ Current-Pulsed (Note 1)	1000	A
P_D	Maximum Power Dissipation($T_C=25^\circ\text{C}$)	216	W
	Maximum Power Dissipation($T_C=100^\circ\text{C}$)	86	W
E_{AS}	Avalanche energy (Note 2)	182	mJ
T_J, T_{STG}	Operating Junction and Storage Temperature Range	-55 To 150	$^\circ\text{C}$

Table 2. Thermal Characteristic

Symbol	Parameter	Typ	Max	Unit
$R_{\theta JC}$	Thermal Resistance, Junction-to-Case		0.58	$^\circ\text{C}/\text{W}$



80V N-Channel SGT Power MOSFET

Table 3. Electrical Characteristics ($T_J=25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
On/Off States						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	80			V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=80V, V_{GS}=0V$			1	μA
I_{GSS}	Gate-Body Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$			± 100	nA
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	2		4	V
g_{FS}	Forward Transconductance	$V_{DS}=10V, I_D=20A$		35		S
$R_{DS(ON)}$	Drain-Source On-State Resistance	$V_{GS}=10V, I_D=20A$		1.5	2	m Ω
Dynamic Characteristics						
C_{iss}	Input Capacitance	$V_{DS}=40V, V_{GS}=0V,$ $f=1.0MHz$		8180		pF
C_{oss}	Output Capacitance			3270		pF
C_{rss}	Reverse Transfer Capacitance			106		pF
R_g	Gate resistance	$V_{GS}=0V, V_{DS}=0V, f=1.0MHz$		3.1		Ω
Switching Parameters						
$t_{d(on)}$	Turn-on Delay Time	$V_{GS}=10V, V_{DS}=40V,$ $R_L=2\Omega, R_{GEN}=3\Omega$		30		nS
t_r	Turn-on Rise Time			50		nS
$t_{d(off)}$	Turn-Off Delay Time			90		nS
t_f	Turn-Off Fall Time			30		nS
Q_g	Total Gate Charge	$V_{GS}=10V, V_{DS}=40V, I_D=20A$		105		nC
Q_{gs}	Gate-Source Charge			35		nC
Q_{gd}	Gate-Drain Charge			27		nC
Source-Drain Diode Characteristics						
I_{SD}	Source-Drain Current (Body Diode)				250	A
V_{SD}	Forward on Voltage (Note 3)	$V_{GS}=0V, I_S=20A$			1.2	V
t_{rr}	Reverse Recovery Time	$I_F=20A, dI/dt=500A/\mu s$		76		ns
Q_{rr}	Reverse Recovery Charge	$I_F=20A, dI/dt=500A/\mu s$		318		nC

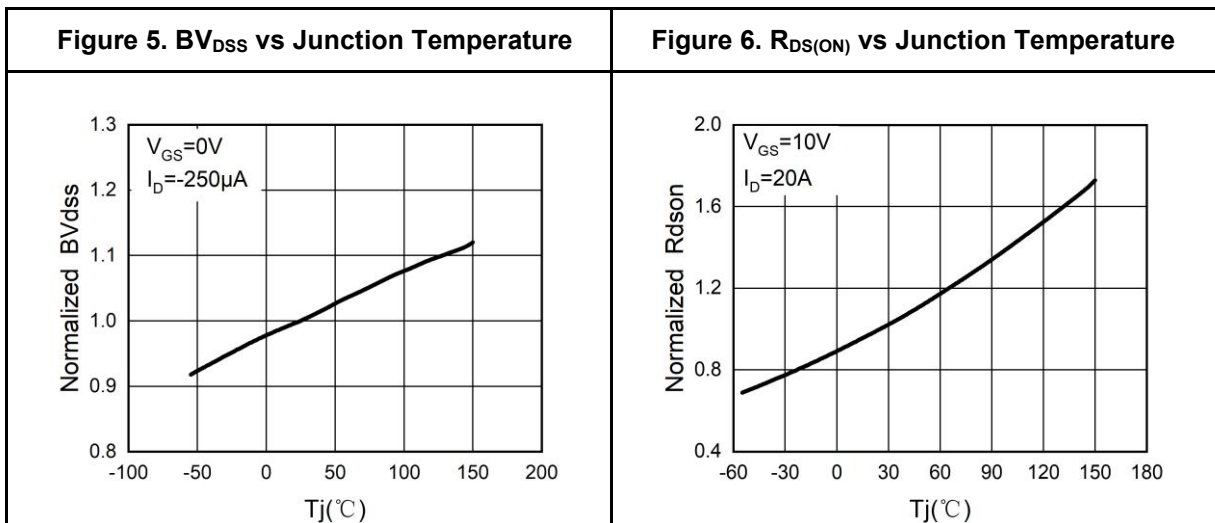
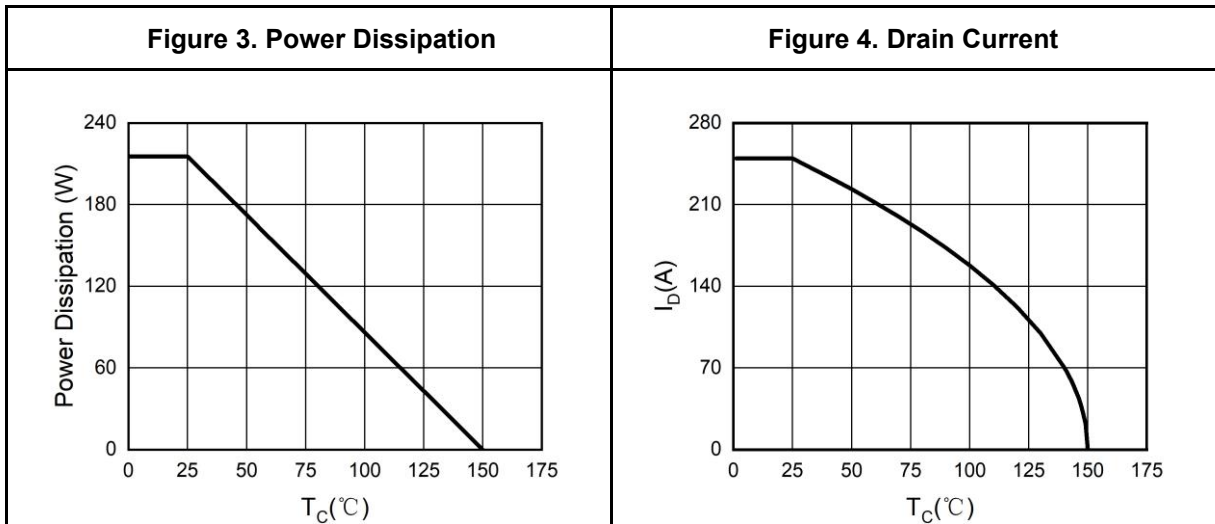
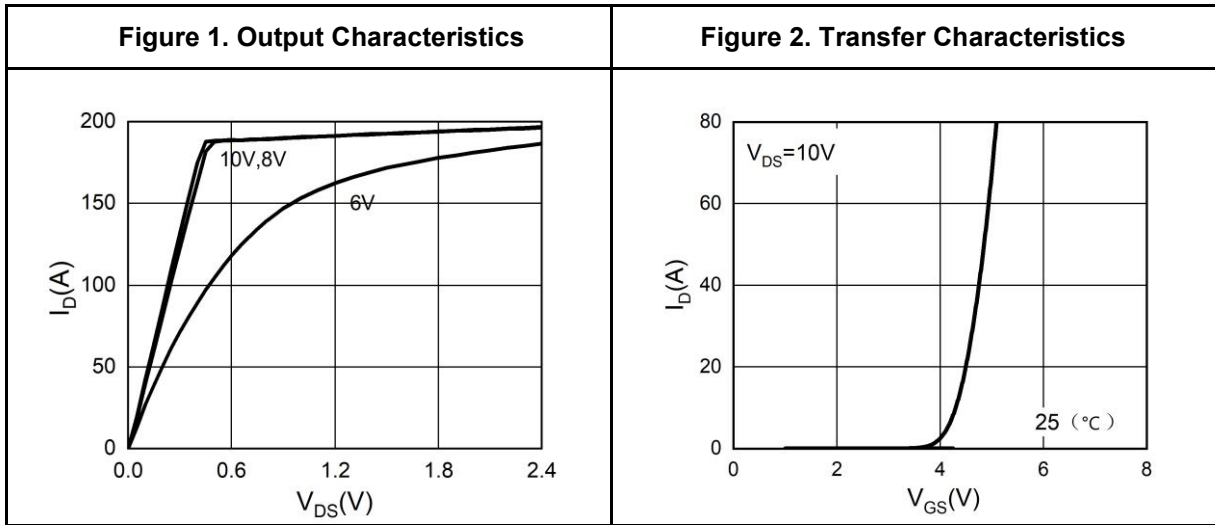
Notes 1.Repetitive Rating: Pulse width limited by maximum junction temperature.

Notes 2.EAS condition: $T_J=25^\circ\text{C}, V_{DD}=40V, V_G=10V, R_g=25\Omega, L=0.5mH$.

Notes 3.Repetitive Rating: Pulse width limited by maximum junction temperature.

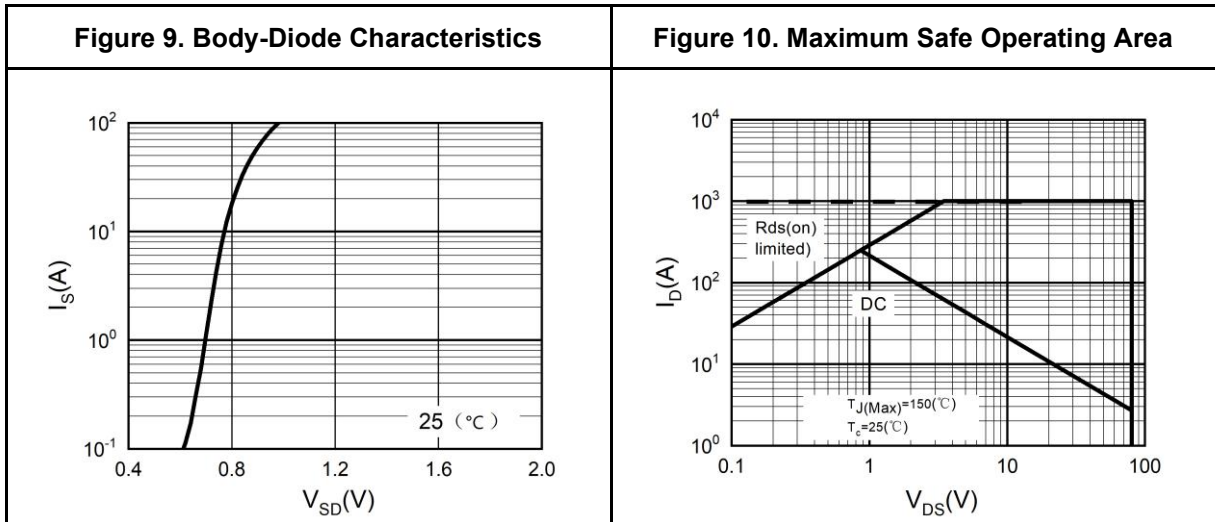
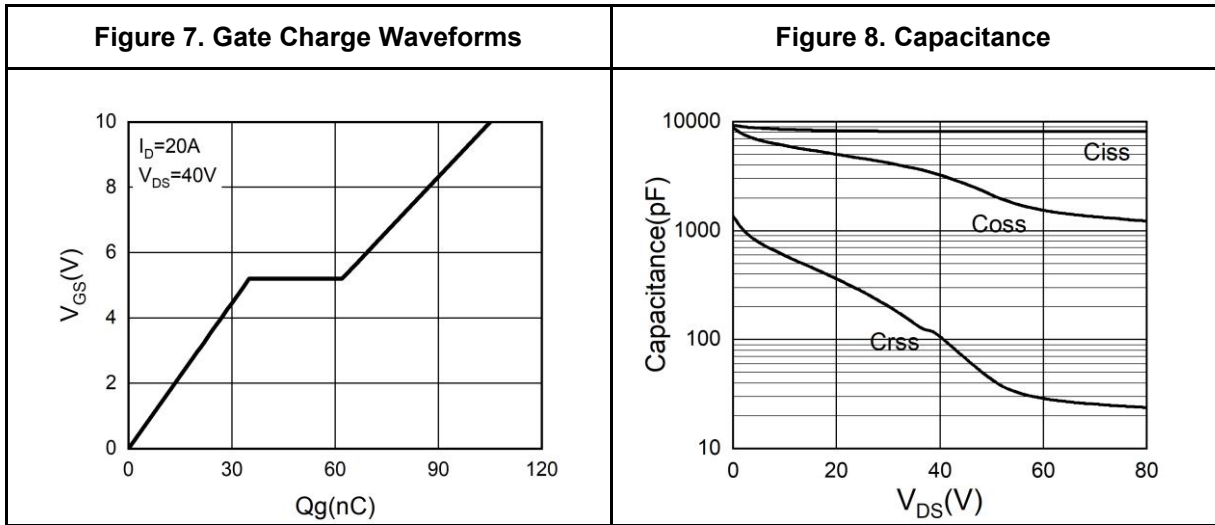


Typical Electrical And Thermal Characteristics (Curves)



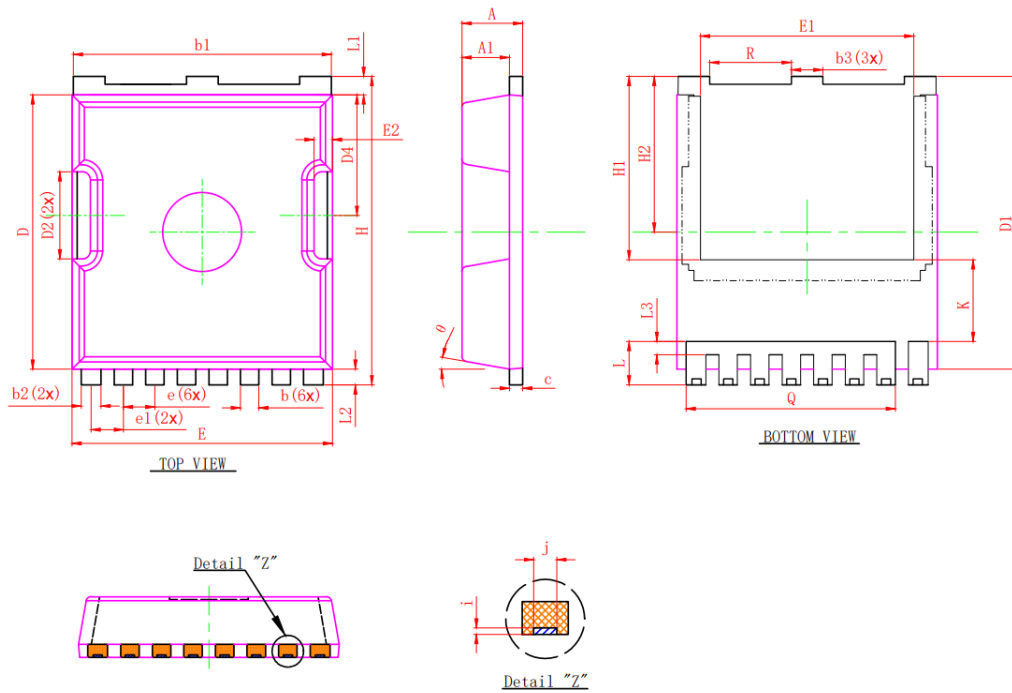


Typical Electrical And Thermal Characteristics (Curves)





TOLL Package Information



SYMBOL	MILLIMETER		
	MIN.	NOM.	MAX.
A	2.200	2.300	2.400
A1	1.700	1.800	1.900
b	0.600	0.700	0.800
b1	9.700	9.800	9.900
b2	0.650	0.750	0.850
b3	1.100	1.200	1.300
c	0.400	0.500	0.600
D	10.300	10.400	10.500
D1	11.000	11.100	11.200
D2	3.200	3.300	3.400
D4	4.470	4.570	4.670
E	9.800	9.900	10.000
E1	8.000	8.100	8.200
E2	0.500	0.600	0.700
e	1.200 BSC		
e1	1.225 BSC		
H	11.600	11.700	11.800
H1	6.950 BSC		
H2	5.900 BSC		
i	0.100 REF.		
j	0.350 REF.		
K	3.100 REF.		
L	1.550	1.650	1.750
L1	0.600	0.700	0.800
L2	0.500	0.600	0.700
L3	0.400	0.500	0.600
Q	7.950 REF.		
R	3.000	3.100	3.200
θ	10° REF.		



Attention

This product described in this document can not be used in life support devices or systems, aircraft's control systems, and other applications whose failure can be reasonably expected to result in serious physical and/or material damage, apart from that when an application agreement is signed between customer and Wuxi Shangjia Semiconductor.

The performances and characteristics of this product in the independent testing state are displayed in this document. Wuxi Shangjia Semiconductor can't guarantee of the performances and characteristics of this described product that mounted in the customer's products or equipments as same as that in the independent testing state. So the customer should evaluate and test devices mounted in the customer's products or equipments.

Wuxi Shangjia Semiconductor reserves the right to improve the designs, functions and reliability of this product and modify any and all information described in this document without notice customer, apart from that when a notice agreement is signed between customer and Wuxi Shangjia Semiconductor.

The information given in this document shall in no event be regarded as a guarantee of conditions or characteristics. With respect to any examples or hints given herein, any typical values stated herein and/or any information regarding the application of the device, Wuxi Shangjia Semiconductor hereby disclaims any and all warranties and liabilities of any kind, including without limitation, warranties of non-infringement of intellectual property rights of any third party.