



100V N-Channel SGT Power MOSFET

General Description

The SJJG025N10 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

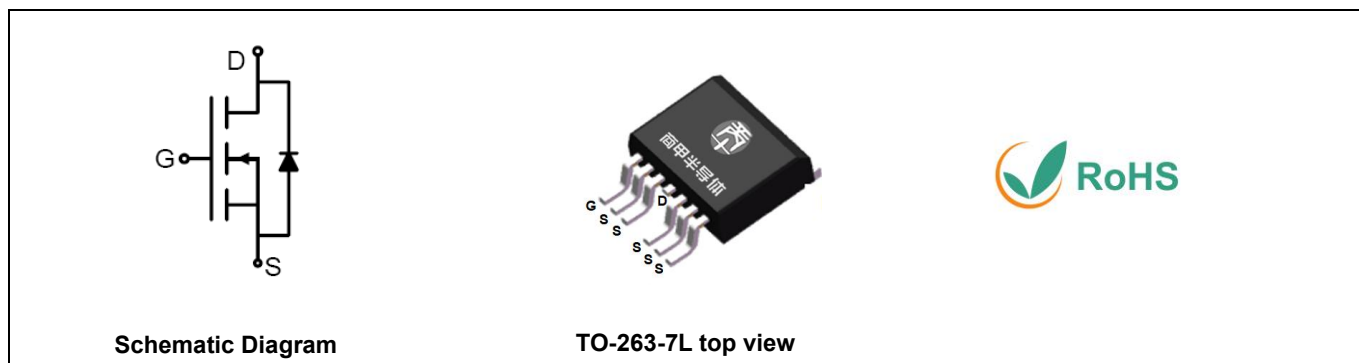
- Low Gate Charge
- 100% UIS Tested, 100% DVDS Tested
- High Power and current handling capability
- Lead free product is acquired

Application

- DC/DC Converter
- Ideal for high-frequency switching and synchronous rectification

Key Performance Parameters

Parameter	Value	Unit
V_{DS}	100	V
$R_{DS(ON_TYP)}$	2.1	m Ω
I_D	226	A
Q_G	98	nC



Package Marking and Ordering Information

Device/Ordering Code	Marking	Package	Packing	Reel Size	Tape width	Quantity
SJJG025N10	SJJG025N10	TO-263-7L	Tube	\	\	800 Pcs

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

Symbol	Parameter	Limit	Unit
V_{DS}	Drain-Source Voltage ($V_{GS}=0V$)	100	V
V_{GS}	Gate-Source Voltage ($V_{DS}=0V$)	± 20	V
I_D	Drain Current-Continuous($T_C=25^\circ\text{C}$)	226	A
	Drain Current-Continuous($T_C=100^\circ\text{C}$)	143	A
$I_{DM (pluse)}$	Drain Current-Continuous@ Current-Pulsed (Note 1)	904	A
P_D	Maximum Power Dissipation($T_C=25^\circ\text{C}$)	227	W
	Maximum Power Dissipation($T_C=100^\circ\text{C}$)	91	W
E_{AS}	Avalanche energy (Note 2)	1369	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		0.55	$^\circ\text{C/W}$



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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	$V_{GS}=0V, I_D=250\mu A$	100			V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=100V, V_{GS}=0V, T_J=25^\circ\text{C}$			1	μA
		$V_{DS}=100V, V_{GS}=0V, T_J=125^\circ\text{C}$			100	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	$V_{DS}=10V, I_D=20A$		31		S
$R_{DS(ON)}$	Drain-Source On-State Resistance	$V_{GS}=10V, I_D=20A, T_J=25^\circ\text{C}$		2.1	2.7	m Ω
Dynamic Characteristics						
C_{iss}	Input Capacitance	$V_{DS}=50V, V_{GS}=0V, f=1.0\text{MHz}$		7320		pF
C_{oss}	Output Capacitance			2690		pF
C_{rss}	Reverse Transfer Capacitance			60		pF
R_g	Gate resistance	$V_{GS}=0V, V_{DS}=0V, f=1.0\text{MHz}$		4.2		Ω
Switching Parameters						
$t_{d(on)}$	Turn-on Delay Time	$V_{GS}=10V, V_{DS}=50V, R_L=2.5\Omega, R_{GEN}=6\Omega$		27		nS
t_r	Turn-on Rise Time			42		nS
$t_{d(off)}$	Turn-Off Delay Time			72		nS
t_f	Turn-Off Fall Time			40		nS
Q_g	Total Gate Charge	$V_{GS}=10V, V_{DS}=50V, I_D=20A$		98		nC
Q_{gs}	Gate-Source Charge			33		nC
Q_{gd}	Gate-Drain Charge			23		nC
Source-Drain Diode Characteristics						
I_{SD}	Source-Drain Current (Body Diode)				226	A
V_{SD}	Forward on Voltage (Note 3)	$V_{GS}=0V, I_S=20A$			1.2	V
t_{rr}	Reverse Recovery Time	$I_F=20A, dI/dt=500A/\mu s$		70		ns
Q_{rr}	Reverse Recovery Charge	$I_F=20A, dI/dt=500A/\mu s$		120		nC

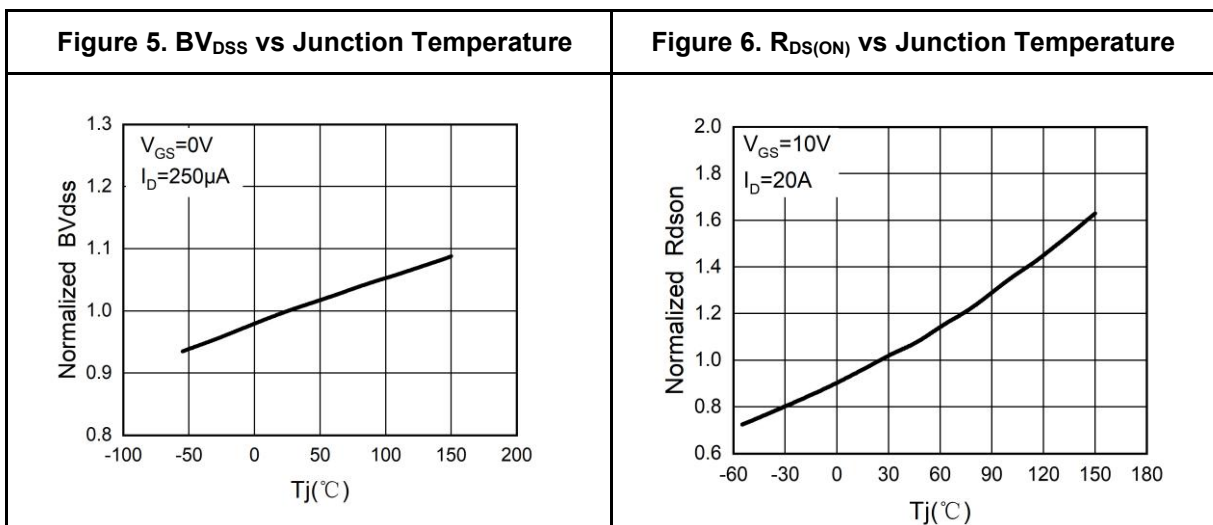
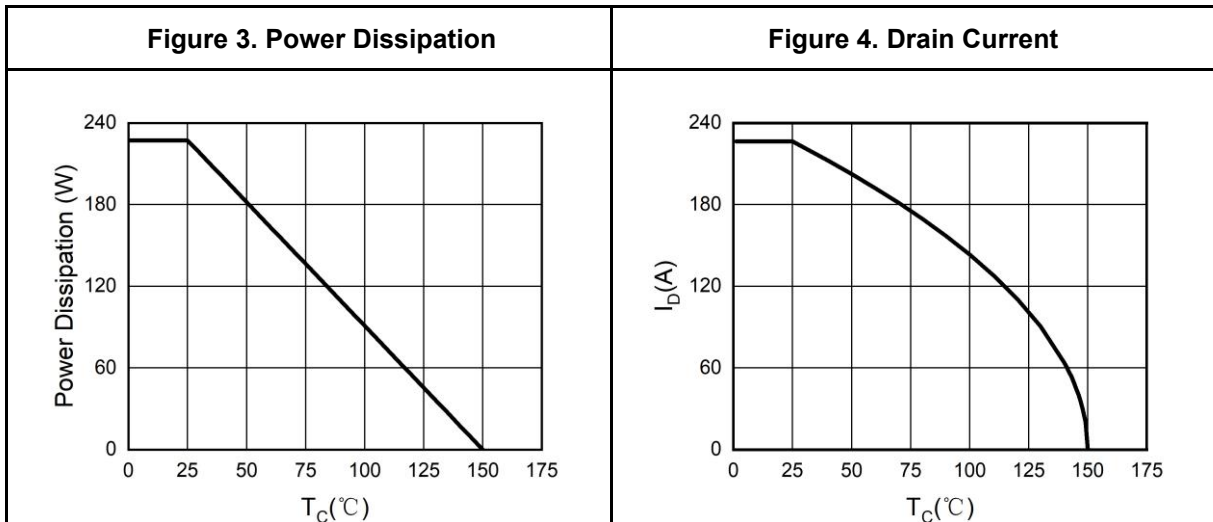
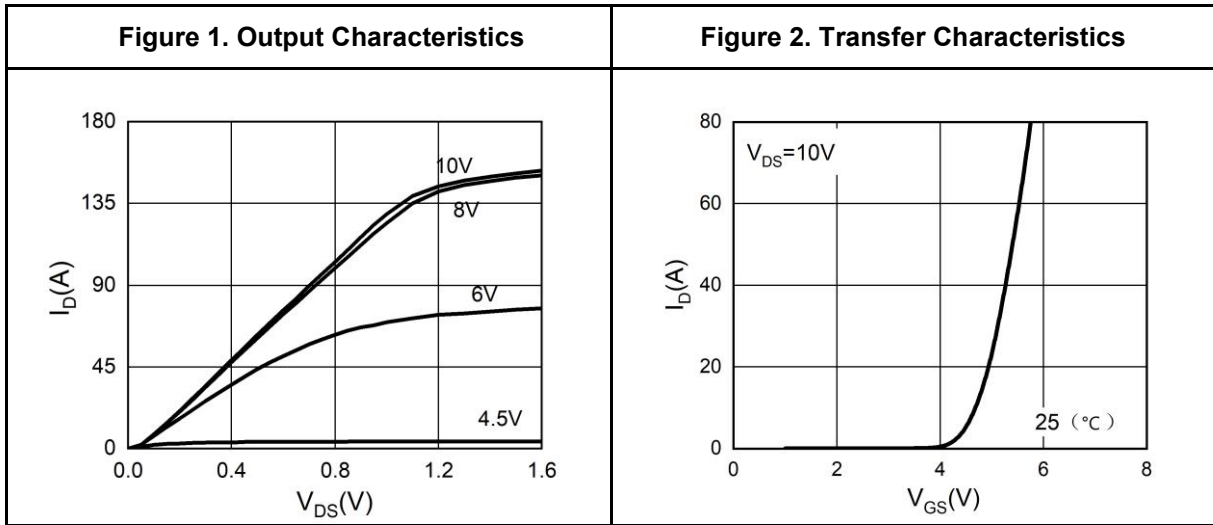
Notes 1.Repetitive Rating: Pulse width limited by maximum junction temperature.

Notes 2.EAS condition: $T_J=25^\circ\text{C}, V_{DD}=50V, V_G=10V, R_g=25\Omega, L=0.5\text{mH}$.

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

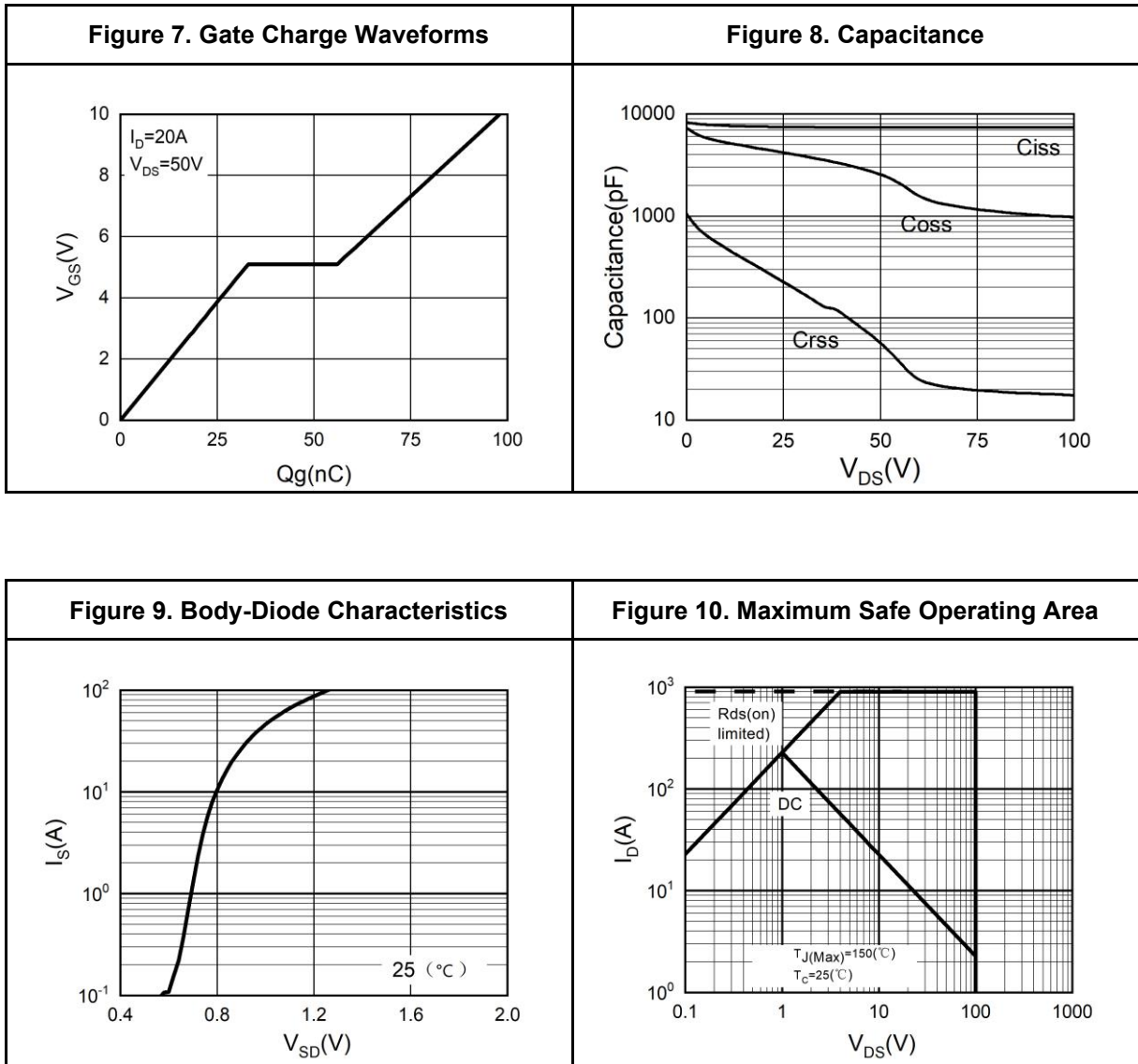


Typical Electrical And Thermal Characteristics (Curves)



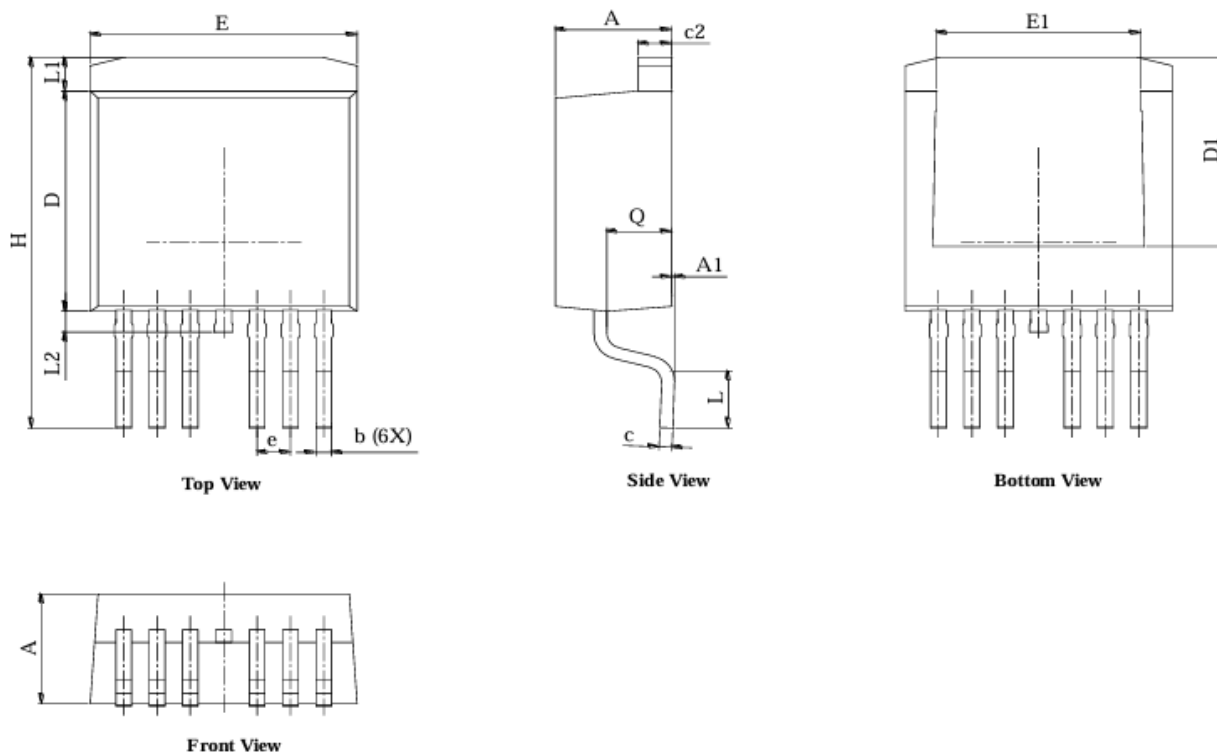


Typical Electrical And Thermal Characteristics (Curves)





TO-263-7L Package Information



DIM.	MILLIMETER		
	MIN.	NOM.	MAX.
A	4.24	4.44	4.64
A1	0.00	0.10	0.25
b	0.50	0.60	0.70
c	0.40	0.50	0.60
c2	1.15	1.27	1.40
D	8.82	8.92	9.02
D1	7.65 REF.		
E	9.96	10.16	10.36
E1	6.80	7.80	8.00
e	1.27 BSC		
H	14.61	15.00	15.88
L	1.78	2.32	2.80
L1	1.36 REF.		
L2	1.20 REF.		
L3	0.25 BSC		
Q	2.30	2.48	2.70



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