



## 30V N-Channel Trench Power MOSFET

### General Description

The SJJ30N026 uses advanced trench technology to provide excellent  $R_{DS(ON)}$ , low gate charge and operation with gate voltages as low as 4.5V. 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

- PWM Applications
- Load Switch
- Power Management

### Key Performance Parameters

Parameter	Value	Unit
$V_{DS}$	30	V
$R_{DS(ON\_TYP)}$	2.8	m $\Omega$
$I_D$	136	A
$Q_G$	52	nC



### Package Marking and Ordering Information

Device/Ordering Code	Marking	Package	Packing	Reel Size	Tape width	Quantity
SJJ30N026	SJJ30N026	TO-263	Tape	\	\	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 ( $V_{GS}=0V$ )	30	V
$V_{GS}$	Gate-Source Voltage ( $V_{DS}=0V$ )	$\pm 20$	V
$I_D$	Drain Current-Continuous( $T_C=25^\circ\text{C}$ )	136	A
	Drain Current-Continuous( $T_C=100^\circ\text{C}$ )	86	A
$I_{DM}$ (pluse)	Drain Current-Continuous@ Current-Pulsed (Note 1)	544	A
$P_D$	Maximum Power Dissipation( $T_C=25^\circ\text{C}$ )	102	W
	Maximum Power Dissipation( $T_C=100^\circ\text{C}$ )	41	W
$E_{AS}$	Avalanche energy (Note 2)	272	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		1.22	$^\circ\text{C/W}$



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**Table 3. Electrical Characteristics (T<sub>J</sub>=25°C unless otherwise noted)**

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
<b>On/Off States</b>						
B <sub>VDSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V I <sub>D</sub> =250μA	30			V
I <sub>DSS</sub>	Zero Gate Voltage Drain Current	V <sub>DS</sub> =30V, V <sub>GS</sub> =0V T <sub>J</sub> =25°C			1	μA
		V <sub>DS</sub> =30V, V <sub>GS</sub> =0V T <sub>J</sub> =125°C			100	μA
I <sub>GSS</sub>	Gate-Body Leakage Current	V <sub>GS</sub> =±20V, V <sub>DS</sub> =0V			±100	nA
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA	1		2.5	V
g <sub>FS</sub>	Forward Transconductance	V <sub>DS</sub> =5V, I <sub>D</sub> =20A		43		S
R <sub>DS(ON)</sub>	Drain-Source On-State Resistance	V <sub>GS</sub> =10V, I <sub>D</sub> =20A T <sub>J</sub> =25°C		2.8	3.5	mΩ
R <sub>DS(ON)</sub>	Drain-Source On-State Resistance	V <sub>GS</sub> =4.5V, I <sub>D</sub> =10A T <sub>J</sub> =25°C		4	5.3	mΩ
<b>Dynamic Characteristics</b>						
C <sub>iss</sub>	Input Capacitance	V <sub>DS</sub> =15V, V <sub>GS</sub> =0V, f=1.0MHz		2500		pF
C <sub>oss</sub>	Output Capacitance			285		pF
C <sub>rss</sub>	Reverse Transfer Capacitance			261		pF
R <sub>g</sub>	Gate resistance	V <sub>GS</sub> =0V, V <sub>DS</sub> =0V, f=1.0MHz		2.6		Ω
<b>Switching Parameters</b>						
t <sub>d(on)</sub>	Turn-on Delay Time	V <sub>GS</sub> =10V, V <sub>DS</sub> =15V, R <sub>L</sub> =0.75Ω, R <sub>GEN</sub> =6Ω		15		nS
t <sub>r</sub>	Turn-on Rise Time			139		nS
t <sub>d(off)</sub>	Turn-Off Delay Time			64		nS
t <sub>f</sub>	Turn-Off Fall Time			37		nS
Q <sub>g</sub>	Total Gate Charge	V <sub>GS</sub> =10V, V <sub>DS</sub> =15V, I <sub>D</sub> =20A		52		nC
Q <sub>gs</sub>	Gate-Source Charge			8		nC
Q <sub>gd</sub>	Gate-Drain Charge			11		nC
<b>Source-Drain Diode Characteristics</b>						
I <sub>SD</sub>	Source-Drain Current (Body Diode)				136	A
V <sub>SD</sub>	Forward on Voltage (Note 3)	V <sub>GS</sub> =0V, I <sub>S</sub> =20A			1.2	V
t <sub>rr</sub>	Reverse Recovery Time	I <sub>F</sub> =20A, dI/dt=100A/μs		26.5		ns
Q <sub>rr</sub>	Reverse Recovery Charge	I <sub>F</sub> =20A, dI/dt=100A/μs		17		nC

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

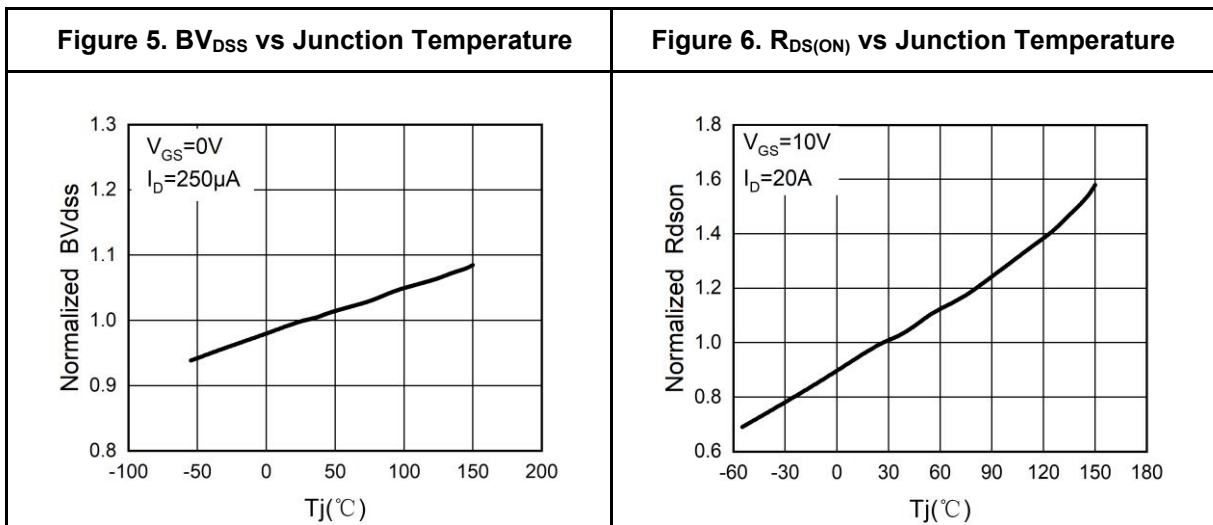
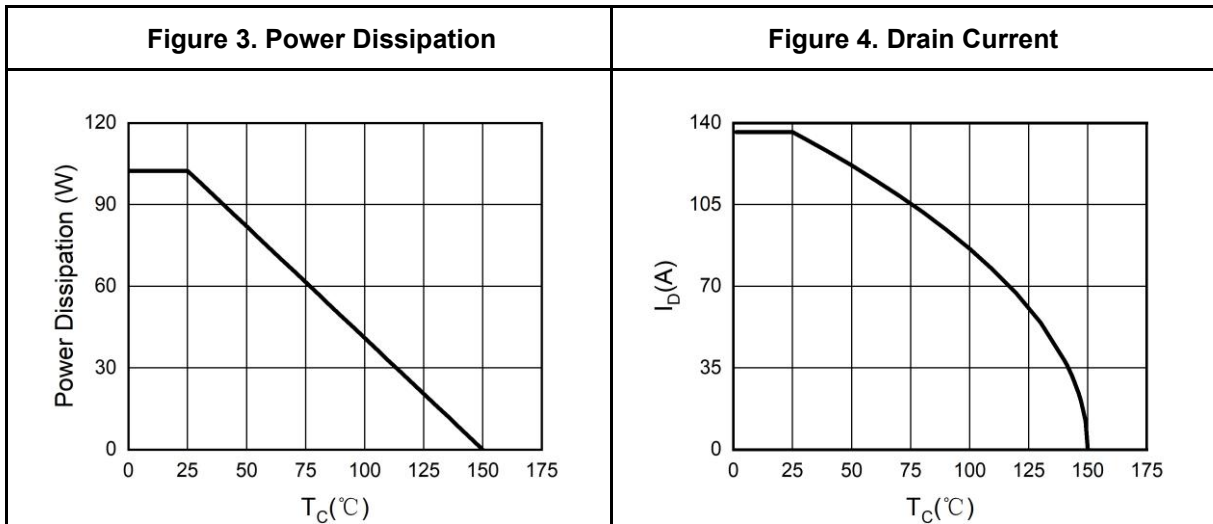
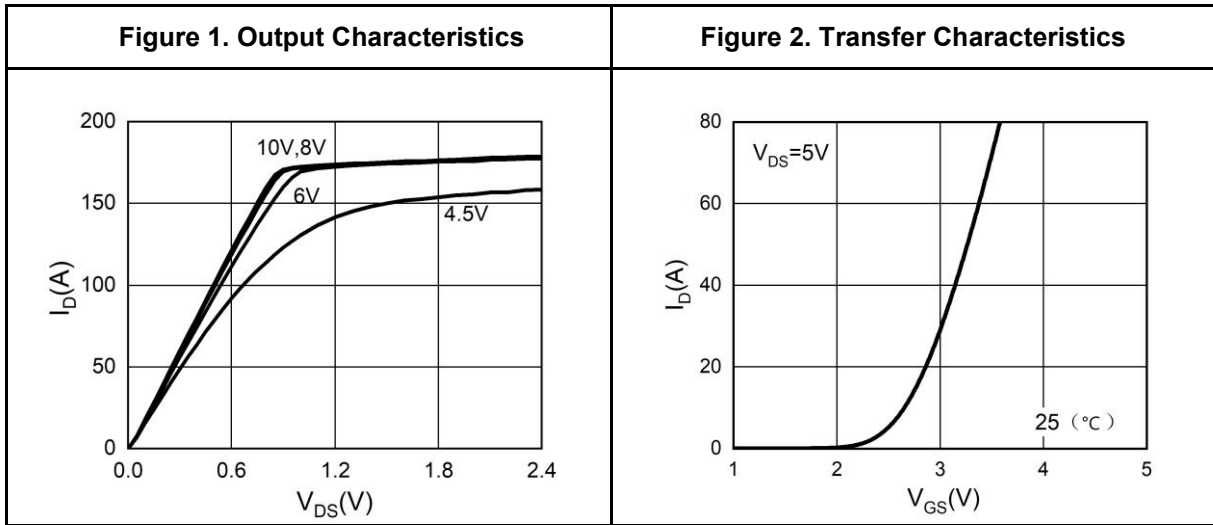
Notes 2.EAS condition: T<sub>J</sub>=25°C, V<sub>DD</sub>=30V, V<sub>G</sub>=10V, R<sub>g</sub>=25Ω, L=0.5mH.

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



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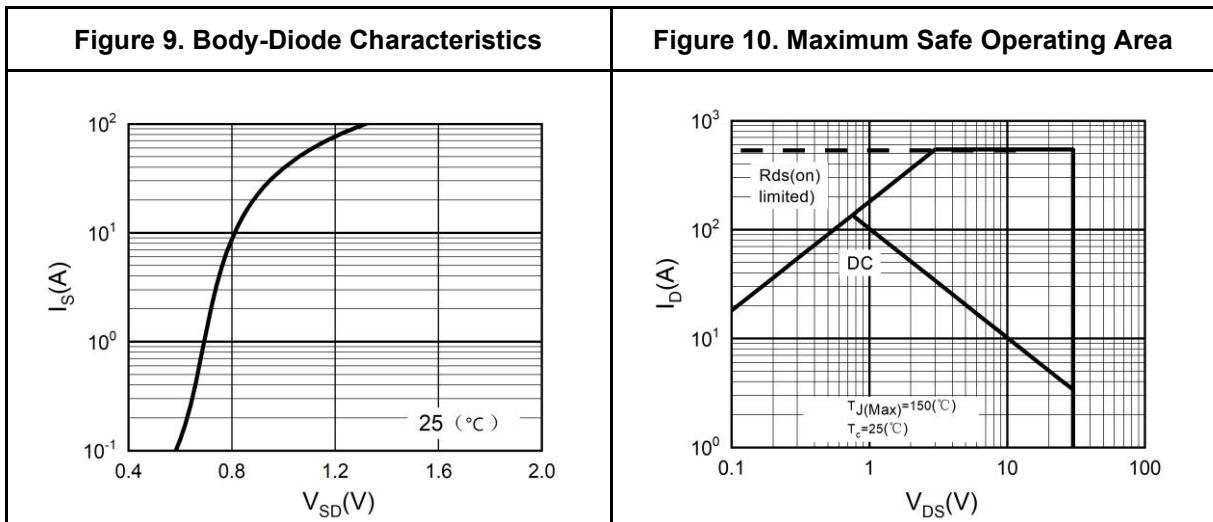
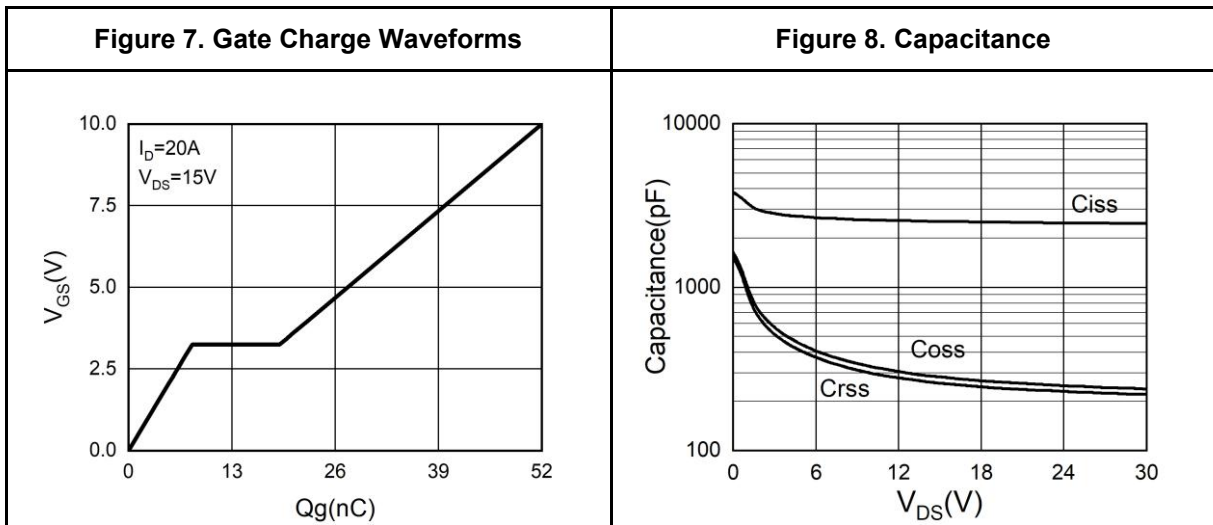
## Typical Electrical And Thermal Characteristics (Curves)





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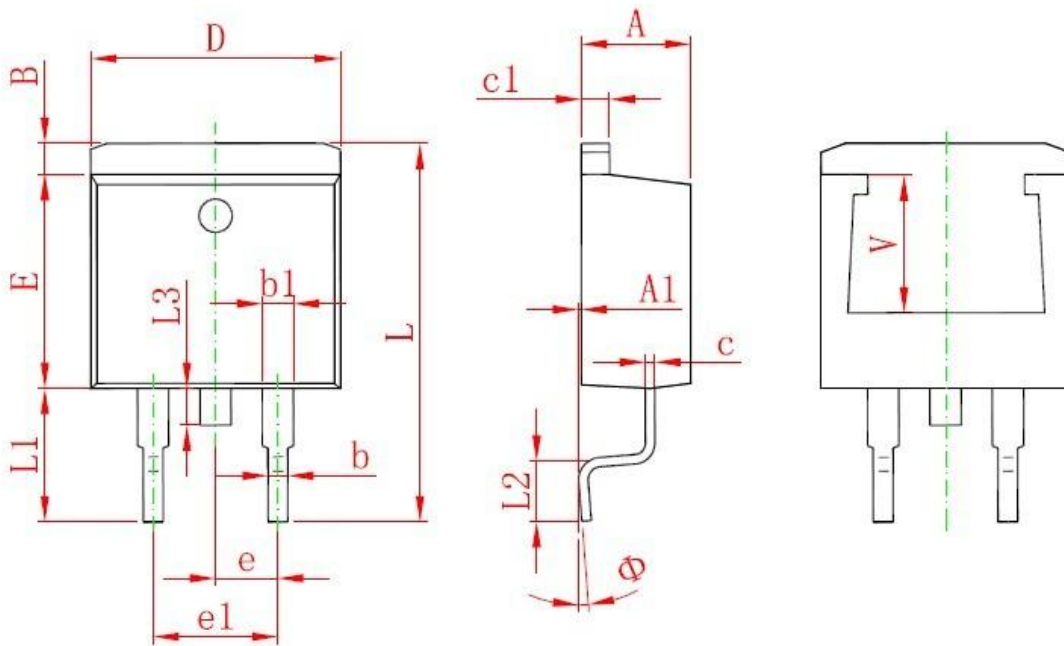
## Typical Electrical And Thermal Characteristics (Curves)





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#### TO-263 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	4.470	4.670	0.176	0.184
A1	0.000	0.150	0.000	0.006
B	1.120	1.420	0.044	0.056
b	0.710	0.910	0.028	0.036
b1	1.170	1.370	0.046	0.054
c	0.310	0.530	0.012	0.021
c1	1.170	1.370	0.046	0.054
D	10.010	10.310	0.394	0.406
E	8.500	8.900	0.335	0.350
e	2.540 TYP.		0.100TYP.	
e1	4.980	5.180	0.196	0.204
L	14.940	15.500	0.588	0.610
L1	4.950	5.450	0.195	0.215
L2	2.340	2.740	0.092	0.108
L3	1.300	1.700	0.051	0.067
V	5.600 REF.		0.220REF.	
Φ	0°	8°	0°	8°



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### Attention

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