



60V N-Channel Trench Power MOSFET

General Description

The SJD60N340 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 handing capability
- Lead free product is acquired

Application

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

Key Performance Parametes

Parameter	Value	Unit
V_{DS}	60	V
$R_{DS(ON_TYP)}$	33	m Ω
I_D	16.6	A
Q_G	15	nC



Package Marking and Ordering Information

Device/Ordering Code	Marking	Package	Packing	Reel Size	Tape width	Quantity
SJD60N340	SJD60N340	TO-252	Tape	\	\	2500 Pcs

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

Symbol	Parameter	Limit	Unit
V_{DS}	Drain-Source Voltage ($V_{GS}=0V$)	60	V
V_{GS}	Gate-Source Voltage ($V_{DS}=0V$)	± 20	V
I_D	Drain Current-Continuous($T_C=25^\circ\text{C}$)	16.6	A
	Drain Current-Continuous($T_C=100^\circ\text{C}$)	10.5	A
I_{DM} (pluse)	Drain Current-Continuous@ Current-Pulsed (Note 1)	66.4	A
P_D	Maximum Power Dissipation($T_C=25^\circ\text{C}$)	24.5	W
	Maximum Power Dissipation($T_C=100^\circ\text{C}$)	9.8	W
E_{AS}	Avalanche energy (Note 2)	30	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	5.1		$^\circ\text{C/W}$



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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	$V_{GS}=0V, I_D=250\mu A$	60			V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=60V, V_{GS}=0V, T_J=25^\circ\text{C}$			1	μA
		$V_{DS}=60V, V_{GS}=0V, T_J=125^\circ\text{C}$			100	μA
I_{GSS}	Gate-Body Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$			± 100	nA
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	1		2.5	V
g_{FS}	Forward Transconductance	$V_{DS}=5V, I_D=4A$		7.7		S
$R_{DS(ON)}$	Drain-Source On-State Resistance	$V_{GS}=10V, I_D=4A, T_J=25^\circ\text{C}$		33	41.3	m Ω
$R_{DS(ON)}$	Drain-Source On-State Resistance	$V_{GS}=4.5V, I_D=3A, T_J=25^\circ\text{C}$		40	53.2	m Ω
Dynamic Characteristics						
C_{iss}	Input Capacitance	$V_{DS}=30V, V_{GS}=0V, f=1.0\text{MHz}$		636		pF
C_{oss}	Output Capacitance			43		pF
C_{rss}	Reverse Transfer Capacitance			37		pF
R_g	Gate resistance	$V_{GS}=0V, V_{DS}=0V, f=1.0\text{MHz}$		1.5		Ω
Switching Parameters						
$t_{d(on)}$	Turn-on Delay Time	$V_{GS}=10V, V_{DS}=30V, R_L=7.5\Omega, R_{GEN}=3\Omega$		9		nS
t_r	Turn-on Rise Time			7		nS
$t_{d(off)}$	Turn-Off Delay Time			16		nS
t_f	Turn-Off Fall Time			4		nS
Q_g	Total Gate Charge	$V_{GS}=10V, V_{DS}=30V, I_D=4A$		15		nC
Q_{gs}	Gate-Source Charge			2		nC
Q_{gd}	Gate-Drain Charge			3.5		nC
Source-Drain Diode Characteristics						
I_{SD}	Source-Drain Current (Body Diode)				16.6	A
V_{SD}	Forward on Voltage (Note 3)	$V_{GS}=0V, I_S=4A$			1.2	V
t_{rr}	Reverse Recovery Time	$I_F=4A, dI/dt=100A/\mu s$		20		ns
Q_{rr}	Reverse Recovery Charge	$I_F=4A, dI/dt=100A/\mu s$		15		nC

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

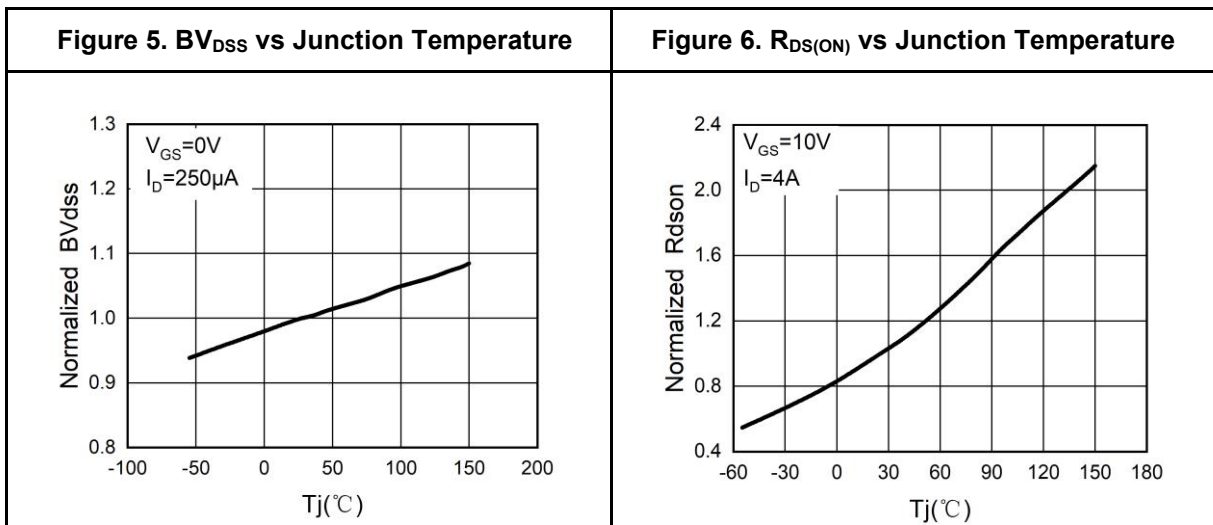
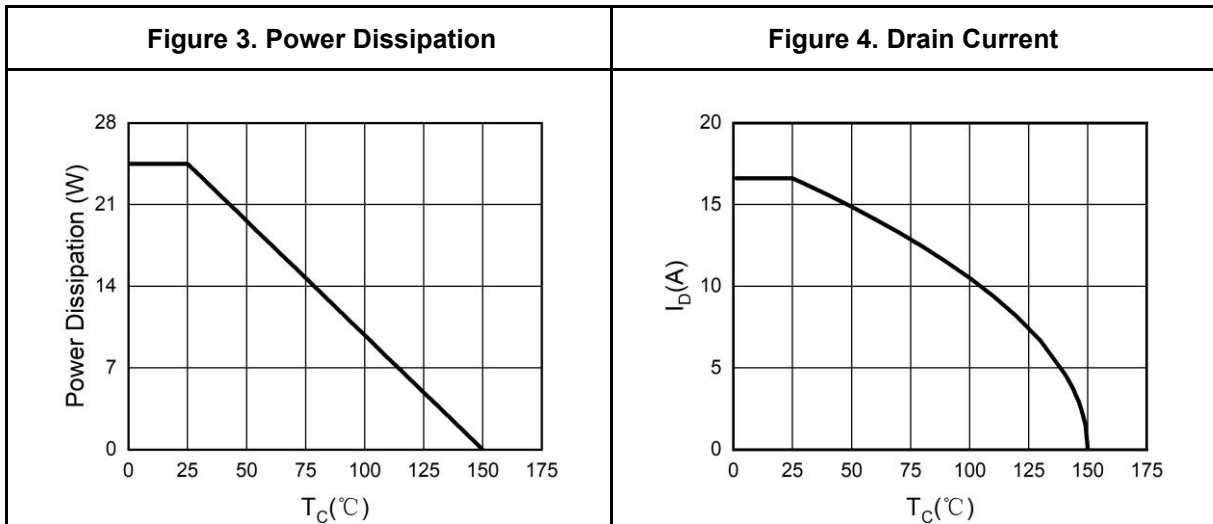
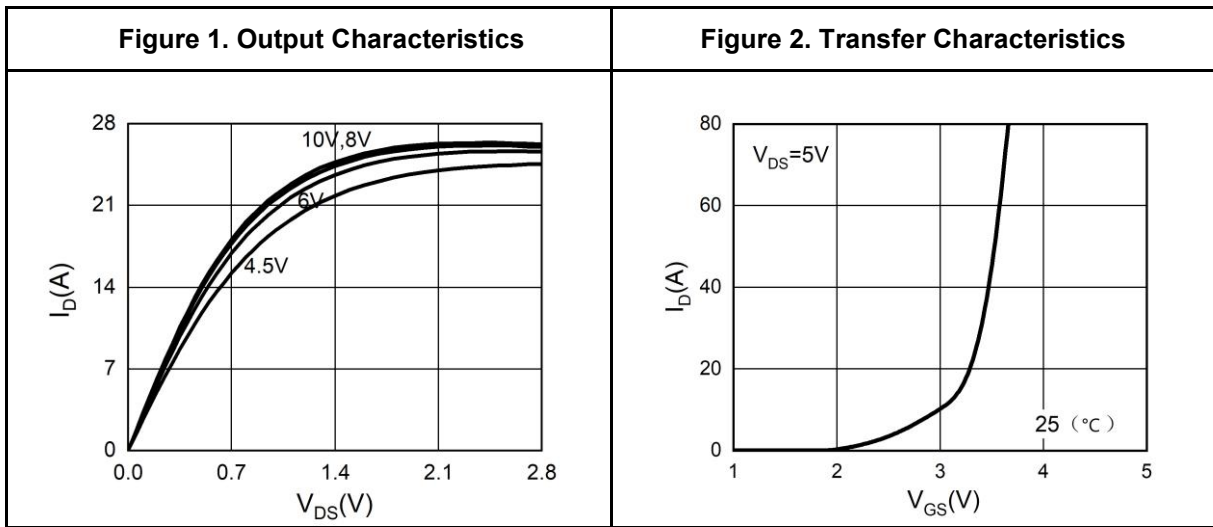
Notes 2.EAS condition: $T_J=25^\circ\text{C}, V_{DD}=40V, V_G=10V, R_g=25\Omega, L=0.5\text{mH}$.

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



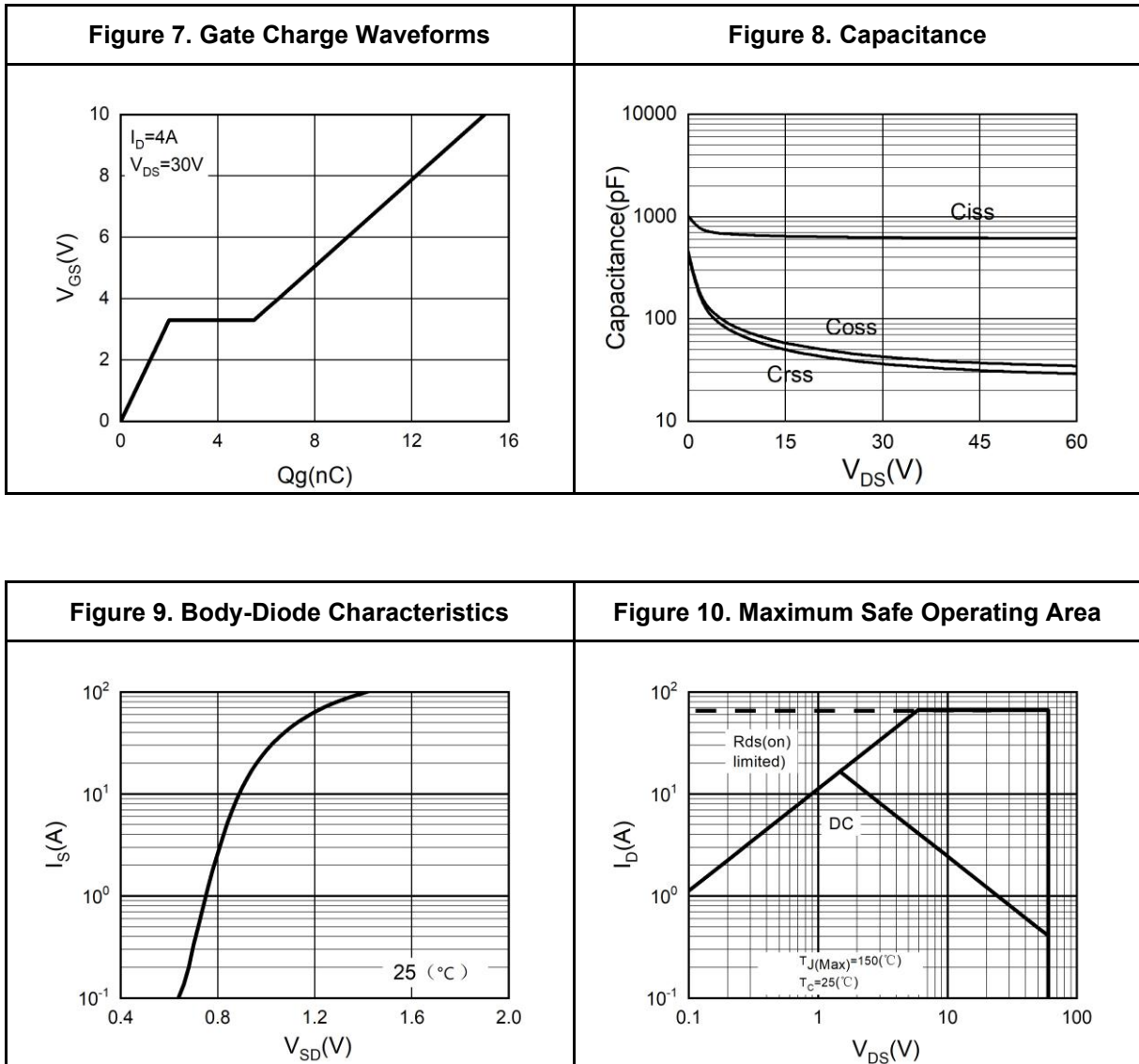
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Typical Electrical And Thermal Characteristics (Curves)



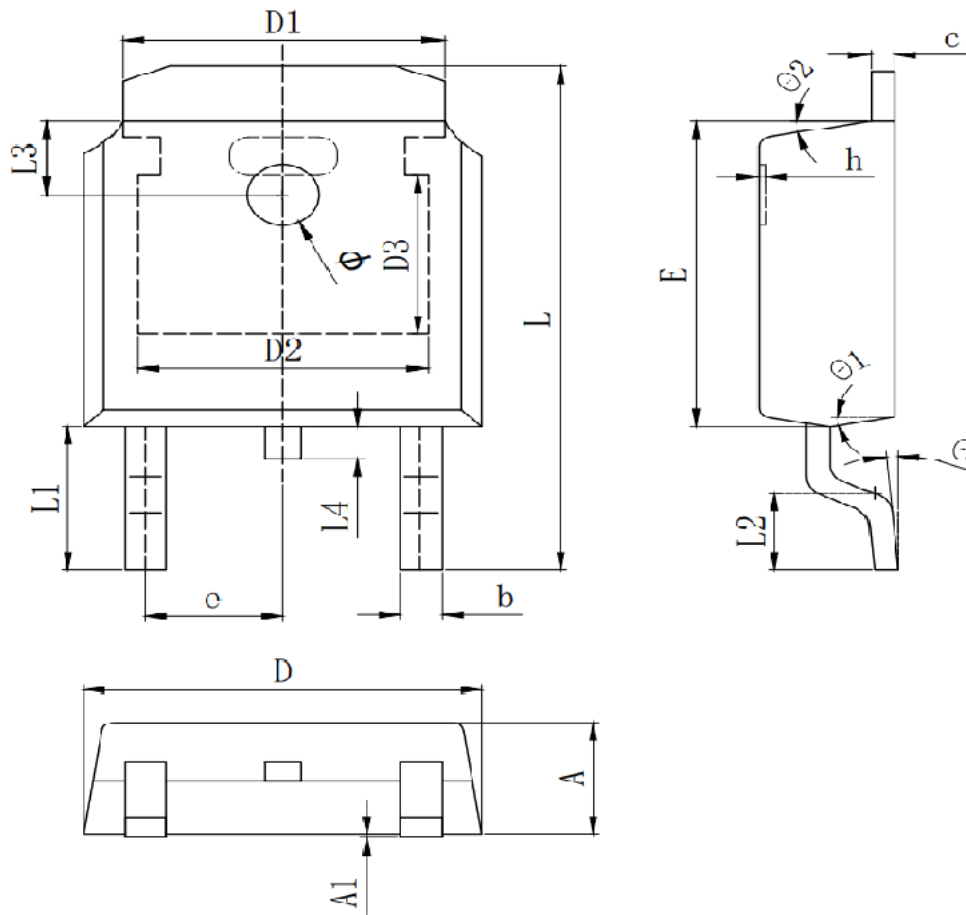


Typical Electrical And Thermal Characteristics (Curves)





TO-252 Package Information



Symbol	Dimensions In Millimeters		
	Min.	Typ.	Max.
A	2.200	2.300	2.400
A1	0.000		0.127
b	0.640	0.690	0.740
c(电镀后)	0.460	0.520	0.580
D	6.500	6.600	6.700
D1	5.334 REF		
D2	4.826 REF		
D3	3.166 REF		
E	6.000	6.100	6.200
e	2.286 TYP		
h	0.000	0.100	0.200
L	9.900	10.100	10.300
L1	2.888 REF		
L2	1.400	1.550	1.700
L3	1.600 REF		
L4	0.600	0.800	1.000
Φ	1.100	1.200	1.300
θ	0°		8°
θ1	9° TYP		
θ2	9° TYP		



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