

EVVOSEMI[®]

THINK CHANGE DO



ESD



TVS



MOS



LDO



Diode



Sensor



DC-DC

Product Specification

▶ Domestic	Part Number	35N06
▶ Overseas	Part Number	35N06
▶ Equivalent	Part Number	35N06

EV is the abbreviation of name EVVO

35N06

60V N-Channel Power Mosfet

General Description

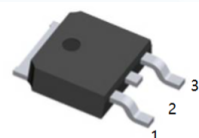
These N-channel enhancement mode power mosfets used advanced trench technology design, provided excellent $R_{DS(on)}$ and low gate charge. Which accords with the RoHS standard.

Features

- $V_{DS} = 60V, I_D = 35A$
 $R_{DS(ON)}, 23\text{ m}\Omega$ (Typ) @ $V_{GS} = 10V$
 $R_{DS(ON)}, 30\text{ m}\Omega$ (Typ) @ $V_{GS} = 4.5V$
- Fast Switching
- Low ON Resistance ($R_{DS(on)} \leq 29\text{ m}\Omega$)
- Low Gate Charge
- Low Reverse transfer capacitances
- 100% Single Pulse avalanche energy Test

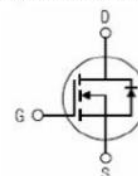
Application

- Power switch circuit of adaptor and charger;
- LED backlight driver;
- Synchronousrectification



1.Date 2.Drain 3.Source
TO-252(DPAK) top view

Inner Equivalent Principium Chart



Package Marking and Ordering Information

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity
35N06	35N06	TO-252	330mm	12mm	2500

Absolute Maximum Ratings($T_A = 25^\circ\text{C}$ unless otherwise noted)

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V_{DS}	60	V
Gate-Source Voltage		V_{GS}	± 20	V
Continuous Drain Current	$T_C = 25^\circ\text{C}$	I_D	35	A
	$T_C = 100^\circ\text{C}$		24.5	A
Pulsed Drain Current ¹⁾		I_{DM}	100	A
Single Puise Avalanche Energy ²⁾		E_{AS}	56.2	mJ
Maximum Power Dissipation	$T_C = 25^\circ\text{C}$	P_D	36.2	W
Storage Temperature Range		T_{STG}	-55 to +150	$^\circ\text{C}$
Operating Junction Temperature Range		T_J	-55 to +150	$^\circ\text{C}$

Thermal Resistance

Parameter	Symbol	Min.	Typ.	Max	Unit
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	-	-	3.45	$^\circ\text{C/W}$
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	-	-	111.5	$^\circ\text{C/W}$

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Electrical Characteristics(TJ=25°C unless otherwise noted)

OFF CHARACTERISTICS						
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _{DS} =250uA	60	-	-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =60V, V _{GS} =0V	-	-	1	uA
Gate-Body Leakage	I _{GSS}	V _{GS} =±20V, V _{DS} =0V	-	-	±100	nA

ON CHARACTERISTICS						
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} , I _{DS} =250uA	1	1.5	2	V
Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} =10V, I _{DS} =19A	-	23	29	mΩ
		V _{GS} =4.5V, I _{DS} =19A	-	30	38	mΩ

DYNAMIC CHARACTERISTICS						
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Input Capacitance	C _{iss}	V _{DS} =30V, V _{GS} = 0V, f=1MHz	-	939	-	pF
Output Capacitance	C _{oss}		-	73.5	-	
Reverse Transfer Capacitance	C _{rss}		-	52.7	-	
Gate Resisitance	R _g	V _{DD} =0V, V _{GS} =0V, F=1MHz	-	1.9	-	Ω

SWITCHING CHARACTERISTICS						
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Turn-On Delay Time	T _{d(on)}	V _{GS} =10V, V _{DS} =30V, R _{GEN} =3Ω I _D =20A	-	8.4	-	ns
Rise Time	t _r		-	8.5	-	
Turn-Off Delay Time	T _{d(off)}		-	35.4	-	
Fall Time	t _f		-	4.8	-	
Total Gate Charge	Q _g	V _{DS} =30V, I _{DS} =20A, V _{GS} =10V	-	21.2	-	nC
Gate to Source Gate Charge	Q _{gs}		-	3.6	-	
Gate to Drain“Miller”Charge	Q _{gd}		-	5.5	-	

DRAIN-SOURCE DIODE CHARACTERISTICS AND MAXIMUM RATINGS						
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Drain-Source Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _{DS} =20A	-	-	1.2	V
Reverse Recovery Time	t _{rr}	T _J =25°C, I _F =20A	-	18.8	-	nS
Reverse Recovery Charge	Q _{rr}	di/dt=100A/us	-	13.4	-	nC

Notes:

- 1) Repetitive rating; pulse width limited by maximum junction temperature .
- 2) L=0.5mH, V_{DD}=30V, I_{as}=15A Start T_J=25°C
- 3) Recommend soldering temperature defined by IPC/JEDEC J-STD 020

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Characteristics Curve:

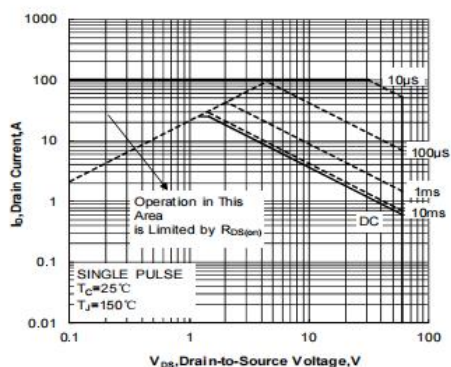


Figure 1 . Maximum Safe Operating Area

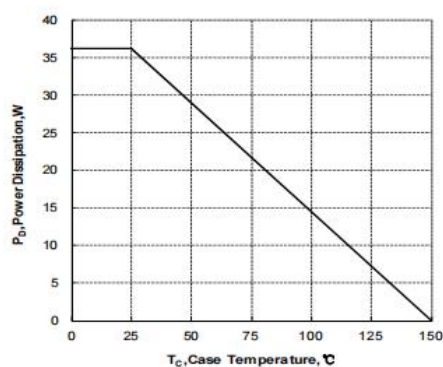


Figure 2. Maximum Power Dissipation vs Case Temperature

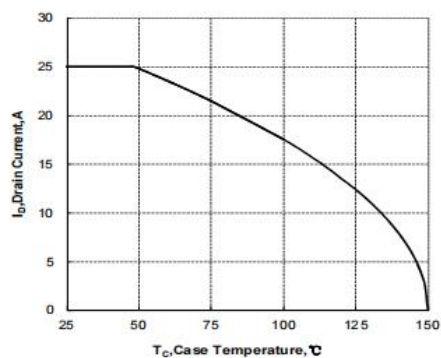


Figure 3. Maximum Continuous Drain Current vs Case Temperature

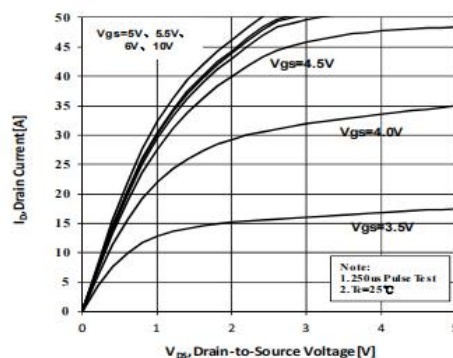


Figure 4. Typical output Characteristics

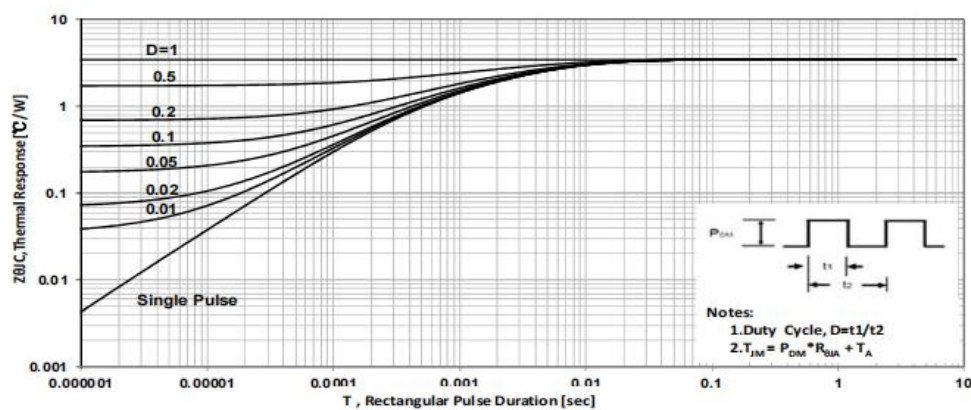


Figure 5 Maximum Effective Thermal Impedance , Junction to Case

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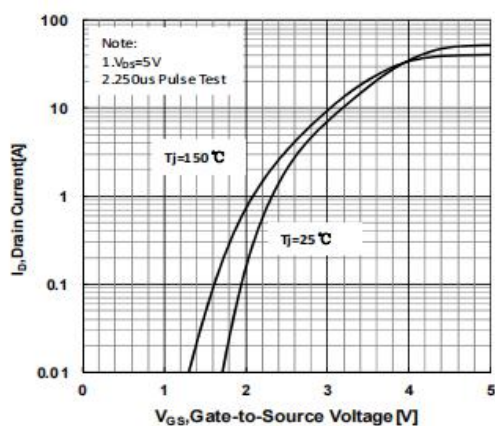


Figure 6 Typical Transfer Characteristics

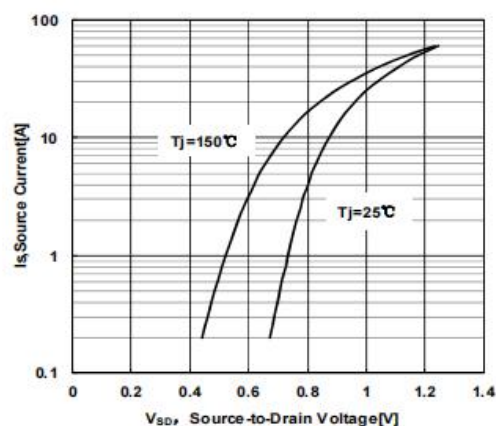


Figure 7 Typical Body Diode Transfer Characteristics

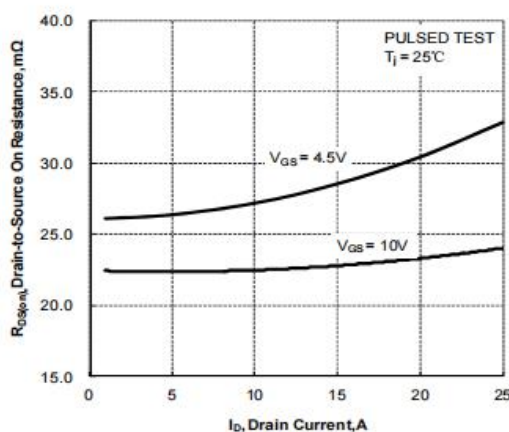


Figure 8. Drain-to-Source On Resistance vs Drain Current

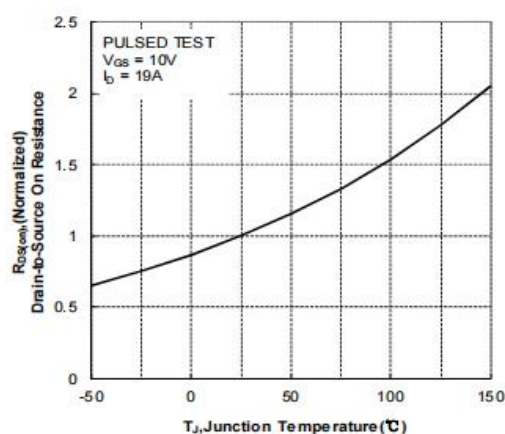


Figure 9. Normalized On Resistance vs Junction Temperature

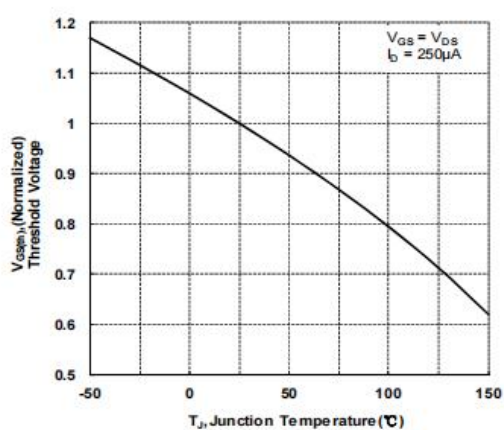


Figure 10. Normalized Threshold Voltage vs Junction Temperature

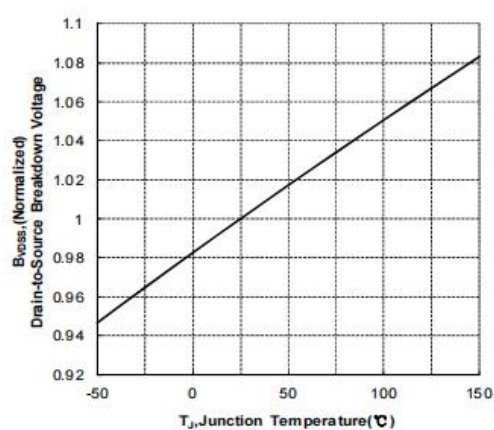


Figure 11. Normalized Breakdown Voltage vs Junction Temperature

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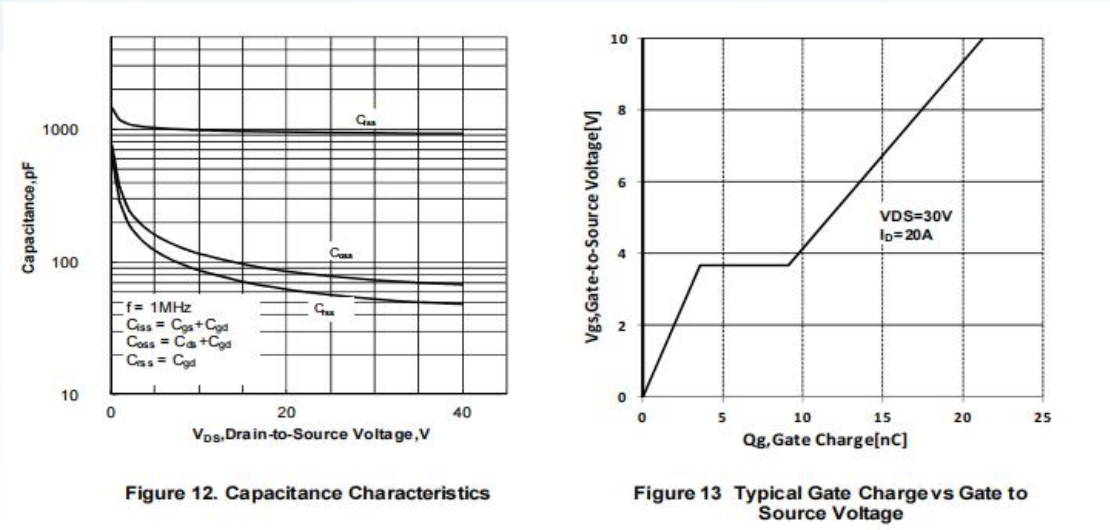


Figure 12. Capacitance Characteristics

Figure 13 Typical Gate Charge vs Gate to Source Voltage

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Test Circuit and Waveform

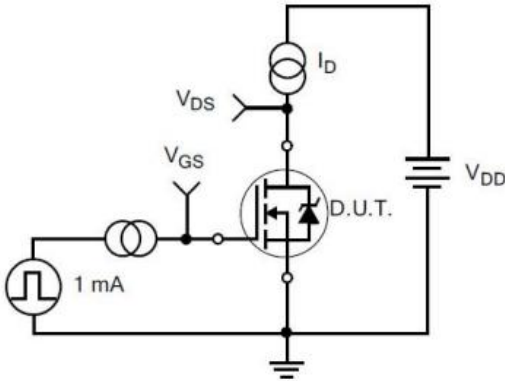


Figure 14. Gate Charge Test Circuit

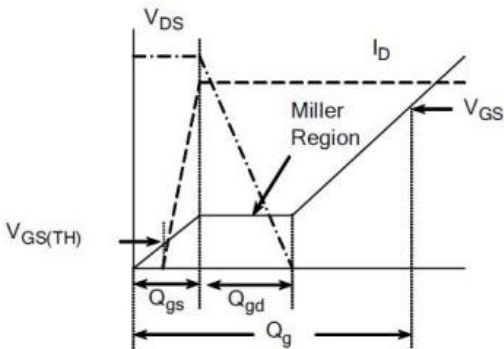


Figure 15. Gate Charge Waveforms

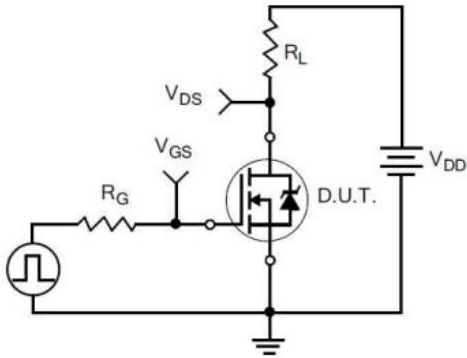


Figure 16. Resistive Switching Test Circuit

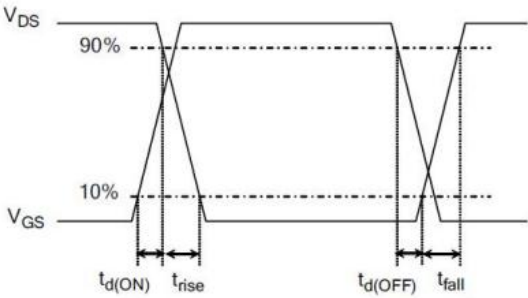


Figure 17. Resistive Switching Waveforms

60V N-Channel Power Mosfet

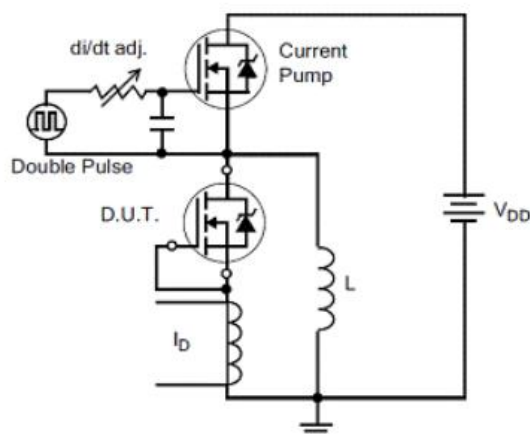


Figure 18. Diode Reverse Recovery Test Circuit

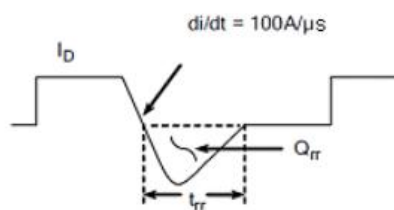


Figure 19. Diode Reverse Recovery Waveform

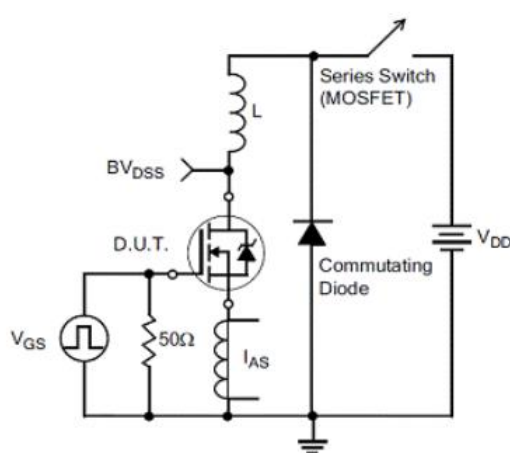


Figure20.Unclamped Inductive Switching Test Circuit

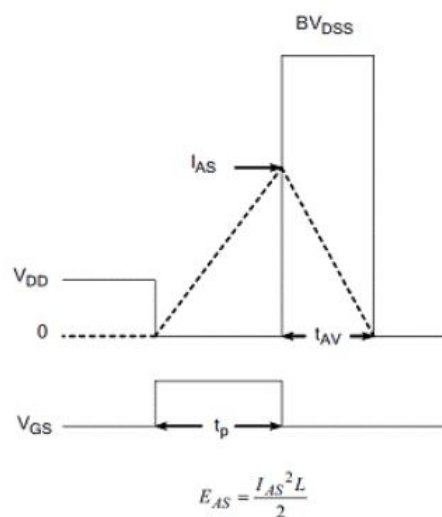
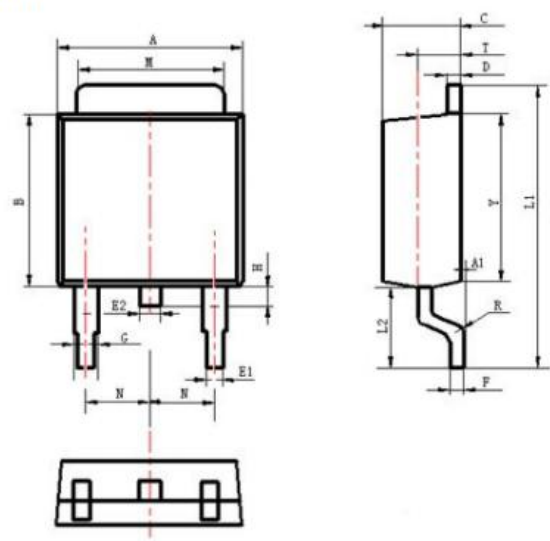


Figure21.Unclamped Inductive Switching Waveform

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Package Information:



Items	Values(mm)	
	MIN	MAX
A	6.30	6.90
A1	0	0.16
B	5.70	6.30
C	2.10	2.50
D	0.30	0.70
E1	0.60	0.90
E2	0.70	1.00
F	0.30	0.60
G	0.70	1.20
L1	9.60	10.50
L2	2.70	3.10
H	0.40	1.00
M	5.10	5.50
N	2.09	2.49
R	0.3	
T	1.40	1.60
Y	5.10	6.30

TO-252 Package

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