

1.Description

The STD35NF06L uses advanced trench technology and design to provide excellent $R_{DS(ON)}$ with low gate charge. It can be used in a wide variety of applications.

2.2Features

- Advanced Trench Technology
- Excellent $R_{DS(ON)}$ and Low Gate Charge

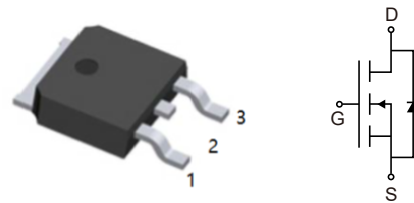
2.1Features

- $V_{DS(V)}=60V$
- $I_D=35A$
- $R_{DS(ON)}<12m\Omega(V_{GS}=10V)$
- $R_{DS(ON)}<16m\Omega(V_{GS}=4.5V)$

3.Pinning information

Pin	Symbol	Description
1	G	GATE
3	S	SOURCE
2	D	DRAIN

TO-252(DPAK)
top view



4.Absolute Maximum Ratings $T_A=25^{\circ}C$

Parameter		Symbol	Rating	Units
Drain-Source Voltage		V_{DS}	60	V
Gate-Source Voltage		V_{GS}	± 20	
Drain Current-Continuous ^{Note3}	$T_C=25^{\circ}C$	I_D	35	A
	$T_C=100^{\circ}C$		25	
Drain Current-Pulsed ^{Note1}		I_{DM}	140	
Avalanche Energy ^{Note4}		E_{AS}	72	mJ
Maximum Power Dissipation	$T_C=25^{\circ}C$	P_D	105	W
Storage Temperature Range		T_{STG}	-55 to 150	$^{\circ}C$
Operating Junction Temperature Range		T_J	-55 to 150	$^{\circ}C$



5.Thermal Resistance Rating

Parameter	Symbol	Typ	Max	Units
Thermal Resistance,Junction-to-Case	R_{thJC}		1.4	°C/W



6.Specifications (T_J= 25°C, unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _{DS} =250μA	60			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =60V, V _{GS} =0V			1	μA
Gate-Body Leakage	I _{GSS}	V _{GS} =±20V, V _{DS} =0V			±100	nA
ON CHARACTERISTIC						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _{DS} =250μA	2	3	4	V
Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} =10V, I _{DS} =30A		12	20	mΩ
		V _{GS} =4.5V, I _{DS} =20A		16		mΩ
DYNAMIC CHARACTERISTICS						
Input Capacitance	C _{iss}	V _{DS} =25V, V _{GS} =0V, f=1MHz		1300		pF
Output Capacitance	C _{oss}			300		pF
Reverse Transfer Capacitance	C _{rss}			105		pF
SWITCHING CHARACTERISTICS						
Turn-On Delay Time	t _{D(on)}	V _{GS} =10V, V _{DS} =30V R _{GEN} =4.7Ω, I _D =27.5A		20		ns
Rise Time	t _r			50		ns
Turn-Off Delay Time	t _{D(off)}			36		ns
Fall Time	t _f			15		ns
Total Gate Charge at 10V	Q _g	V _{DS} =30V, I _{DS} =55A, V _{GS} =10V		44.5	60	nC
Gate to Source Gate Charge	Q _{gs}			10.5		nC
Gate to Drain“Miller”Charge	Q _{gd}			17.5		nC



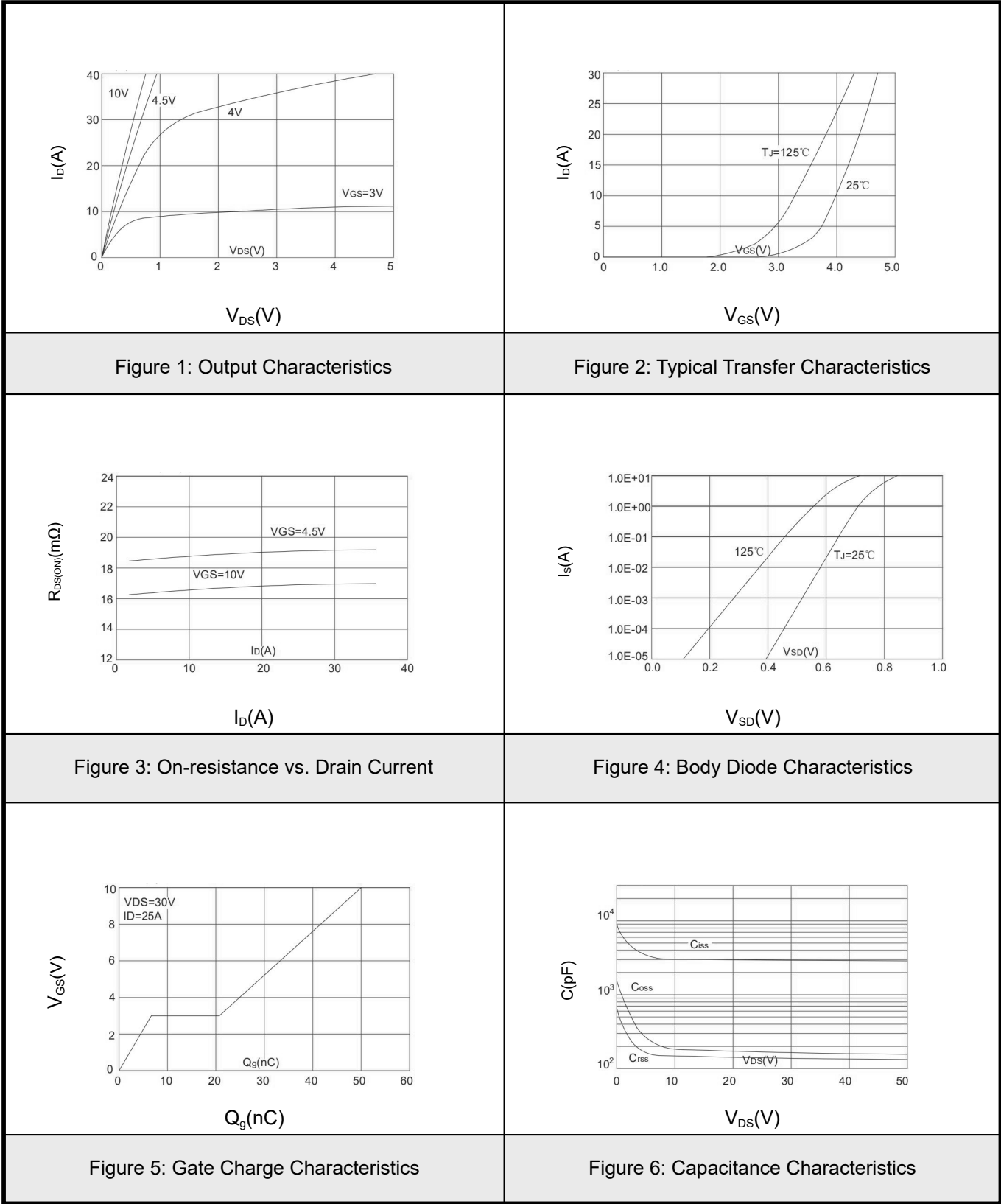
DRAIN-SOURCE DIODE CHARACTERISTICS AND MAXIMUM RATINGS						
Drain-Source Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_{DS}=35A$			1.5	V
Reverse Recovery Time	t_{rr}	$T_J=25^{\circ}C, I_F=25A$		75		nS
Reverse Recovery Charge	Q_{rr}			170		uC

Notes:

- 1: Repetitive rating, pulse width limited by maximum junction temperature.
- 2: Surface mounted on FR4 Board, $t_s \leq 10sec$.
- 3: Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
- 4: E_{AS} condition: $L=0.5mH, V_{DD}=10V, V_G=10V, V_{GATE}=20V, Start T_J=25^{\circ}C$.

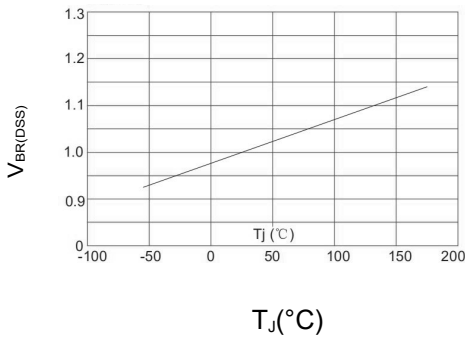
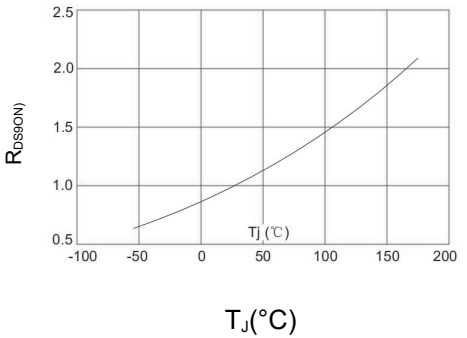
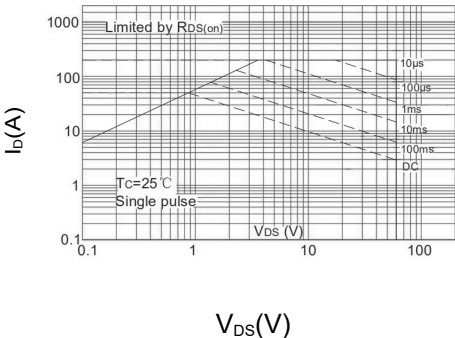
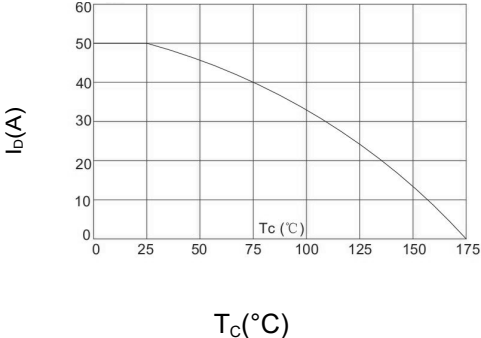
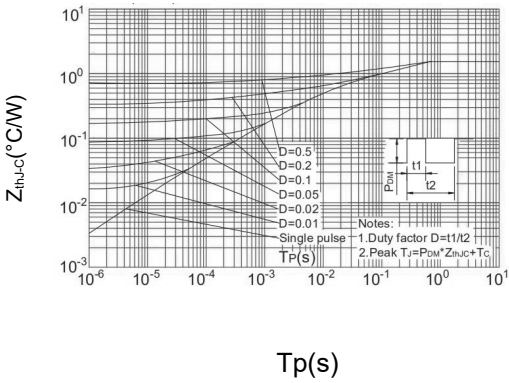


7.1 Typical Characteristics





7.2Typical Characterisitics

	
Figure 7: Normalized Breakdown Voltage vs. Junction Temperature	Figure 8: Normalized on Resistance vs Junction Temperature
	
Figure 9: Maximum Safe Operating Area	Figure 10: Maximum Continuous Drain Current vs. Case Temperature
	
Figure 11: Maximum EffectiveTransient ThermalImpedance, Junction-to-Case	



7.3 Typical Characteristics

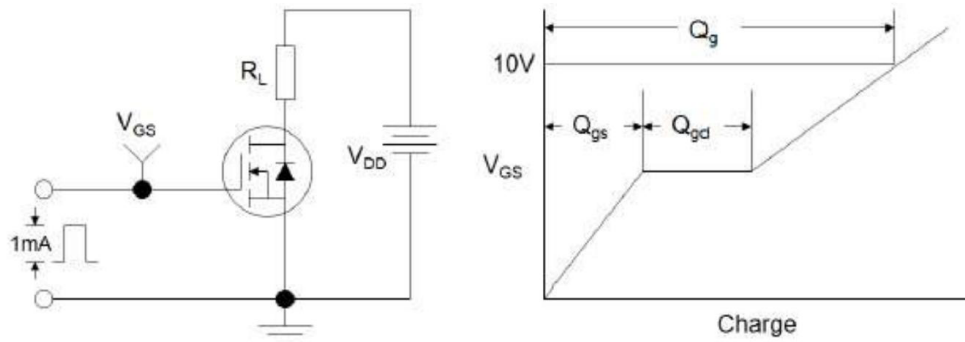


Figure1:Gate Charge Test Circuit & Waveform

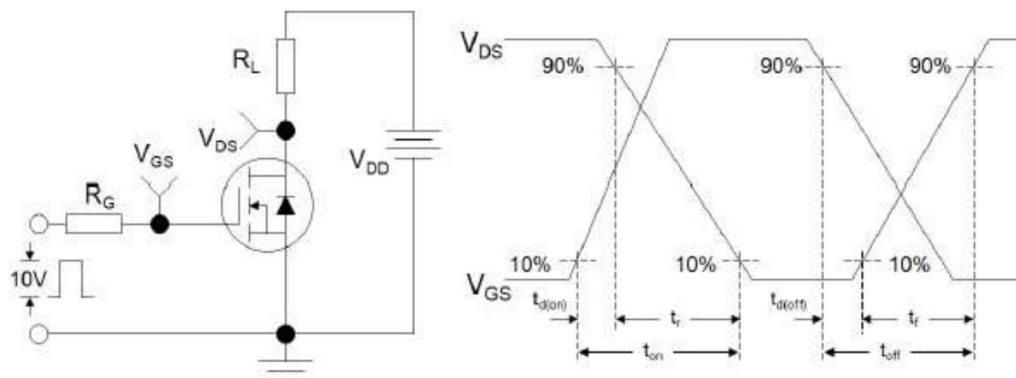


Figure 2: Resistive Switching Test Circuit & Waveforms

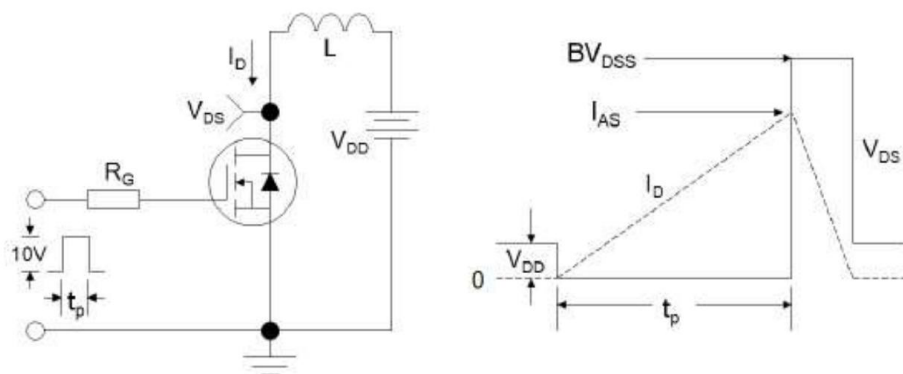
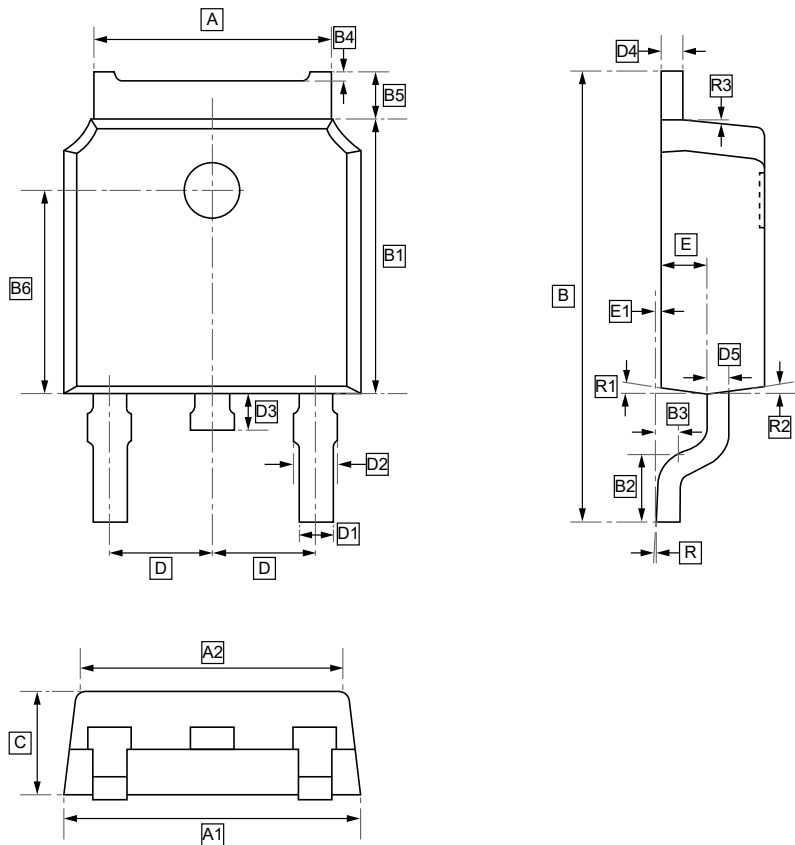


Figure 3:Unclamped inductive Switching Test Circuit & Waveforms



8.TO-252 Package Outline Dimensions



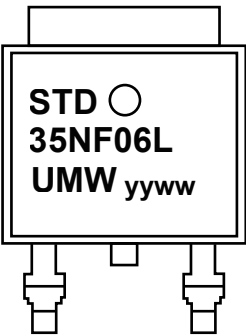
DIMENSIONS (mm are the original dimensions)

Symbol	A	A1	A2	B	B1	B2	B3	B4	B5	B6	C	D
Min	5.1	6.4	5.6	9.5	5.9	1.35	0.4	0.1	0.85	4.35	2.15	2.286
Max	5.5	6.8	6.0	10.3	6.3	1.65	0.6	(typ.)	1.05	4.65	2.45	(typ.)

Symbol	D1	D2	D3	D4	D5	E	E1	R	R1	R2	R3
Min	0.66	0.81	0.65	0.42	0.42	0.86	0.05	0°	7°	7°	7°
Max	0.86	1.01	0.95	0.58	0.58	1.16	0.05	6°	(typ.)	(typ.)	(typ.)



9.Ordering information



yy: Year Code
ww: Week Code

Order Code	Package	Base QTY	Delivery Mode
UMW STD35NF06L	TO-252	2500	Tape and reel



10.Disclaimer

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