

General Description

The MY5N06A use Trench Power MV MOSFET technology, have Excellent package for heat dissipation, use High density cell design for low $R_{DS(ON)}$

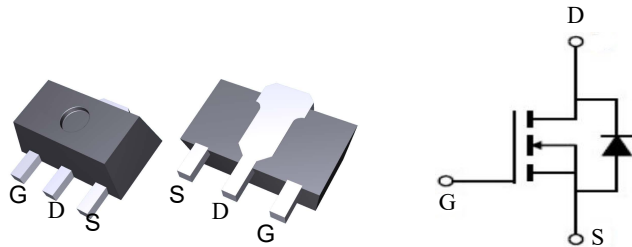


Features

V_{DSS}	60	V
I_D	3	A
$R_{DS(ON)}$ (at $V_{GS}=4.5V$)	<75	m Ω
$R_{DS(ON)}$ (at $V_{GS}=2.5V$)	<90	m Ω

Application

- DC-DC Converters
- Power management functions



Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
MY5N06A	SOT-89	5N06A	1000

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

Parameter	Symbol	Limit	Unit	
Drain-source Voltage	V_{DS}	60	V	
Gate-source Voltage	V_{GS}	± 20	V	
Drain Current	I_D	$T_A=25^\circ\text{C}$ @ Steady State	3	A
		$T_A=70^\circ\text{C}$ @ Steady State	4	
Pulsed Drain Current ^A	I_{DM}	20	A	
Total Power Dissipation @ $T_A=25^\circ\text{C}$	P_D	1.2	W	
Thermal Resistance Junction-to-Ambient @ Steady State ^B	$R_{\theta JA}$	104	$^\circ\text{C}/\text{W}$	
Junction and Storage Temperature Range	T_J, T_{STG}	$-55^\circ\text{C} \sim +150^\circ\text{C}$	$^\circ\text{C}$	

Electrical Characteristics at $T_j=25\text{ }^\circ\text{C}$ unless otherwise specified

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Static Parameter						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	60	66		V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=40V, V_{GS}=0V, T_C=25^\circ C$			1	μA
Gate-Body Leakage Current	I_{GSS1}	$V_{GS}=\pm 20V, V_{DS}=0V$			± 100	nA
	I_{GSS2}	$V_{GS}=\pm 10V, V_{DS}=0V$			± 50	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.9	1.3	2.0	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=3A$		62	75	m Ω
		$V_{GS}=4.5V, I_D=2A$		69	90	
Diode Forward Voltage	V_{SD}	$I_S=5A, V_{GS}=0V$			1.2	V
Maximum Body-Diode Continuous Current	I_S				5	A
Dynamic Parameters						
Input Capacitance	C_{iss}	$V_{DS}=20V, V_{GS}=0V, f=1MHz$		490		μF
Output Capacitance	C_{oss}			92		
Reverse Transfer Capacitance	C_{rss}			68		
Switching Parameters						
Total Gate Charge	Q_g	$V_{GS}=10V, V_{DS}=20V, I_D=3.5A$		5.2		nC
Gate Source Charge	Q_{gs}			0.9		
Gate Drain Charge	Q_{gd}			1.3		
Turn-on Delay Time	$t_{D(on)}$	$V_{GS}=10V, V_{DD}=20V,$ $R_L=2\Omega,$ $R_{GEN}=3\Omega$		13		ns
Turn-on Rise Time	t_r			52		
Turn-off Delay Time	$t_{D(off)}$			17		
Turn-off Fall Time	t_f			10		

A. Pulse Test: Pulse Width $\leq 300\mu s$, Duty cycle $\leq 2\%$.

B. Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch.

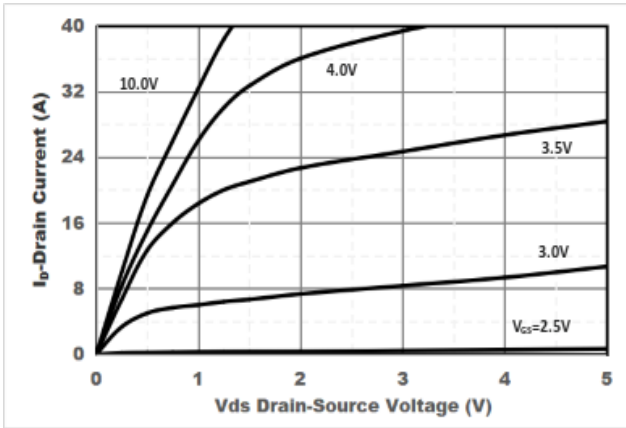


Figure1. Output Characteristics

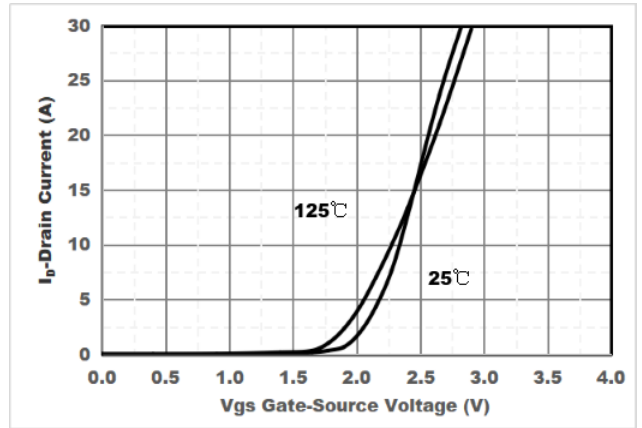


Figure2. Transfer Characteristics

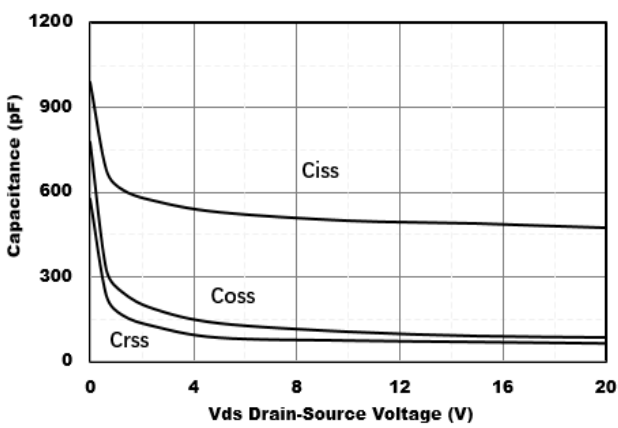


Figure3. Capacitance Characteristics

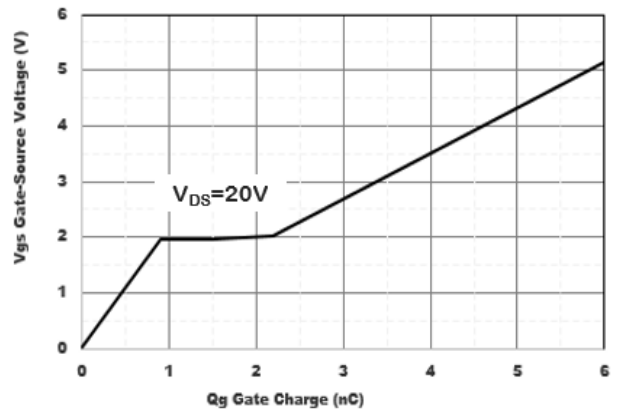


Figure4. Gate Charge

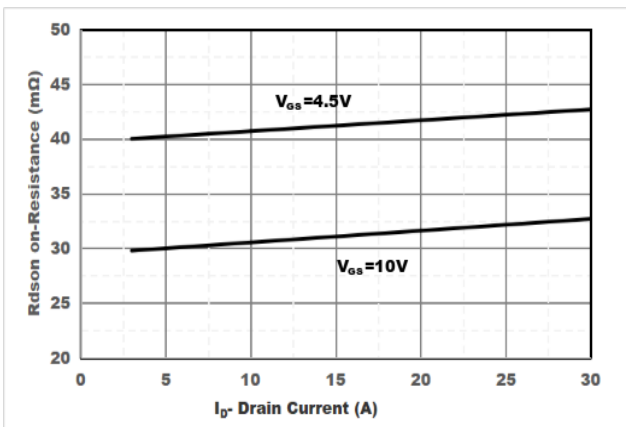


Figure5. Drain-Source on Resistance

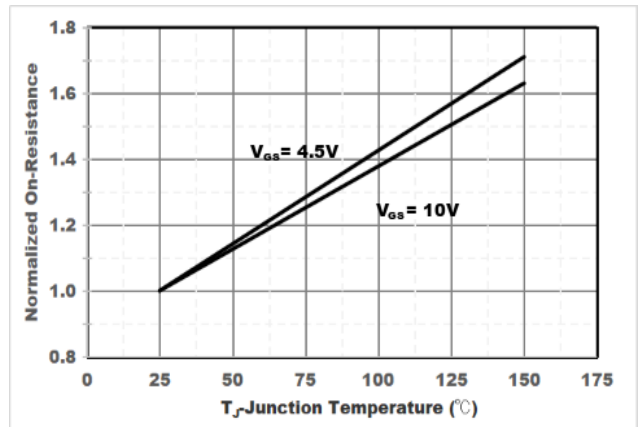


Figure6. Drain-Source on Resistance

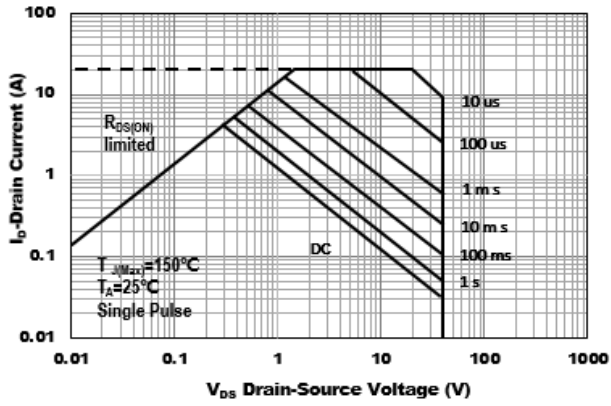


Figure7. Safe Operation Area

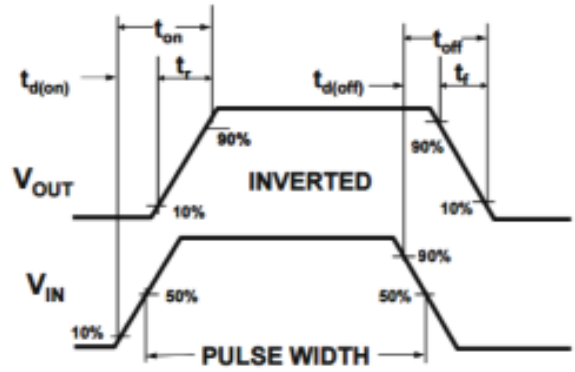
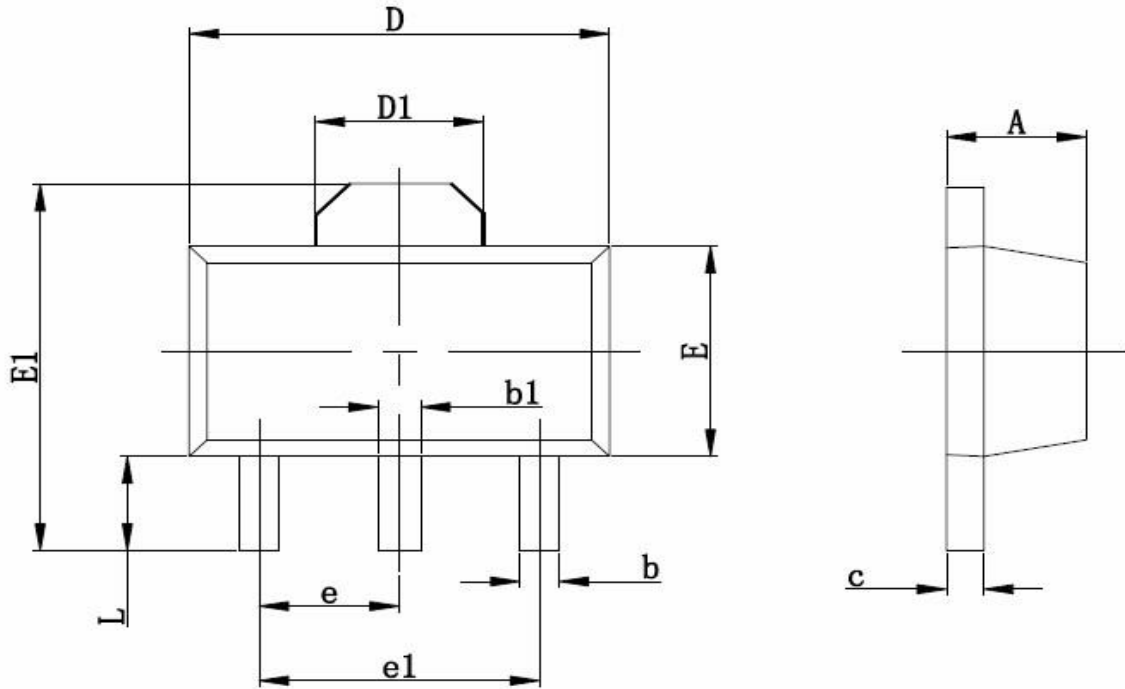


Figure8. Switching wave



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.400	1.600	0.055	0.063
b	0.350	0.520	0.013	0.197
b1	0.400	0.580	0.016	0.023
c	0.350	0.440	0.014	0.017
D	4.400	4.600	0.173	0.181
D1	1.550 REF		0.061 REF	
E	2.350	2.550	0.091	0.102
E1	3.940	4.250	0.155	0.167
e	1.500 TYP		0.060TYP	
e1	3.000 TYP		0.118TYP	
L	0.900	1.100	0.035	0.047