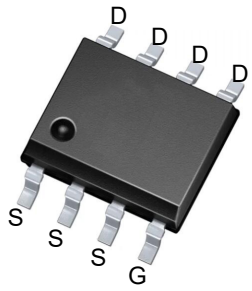
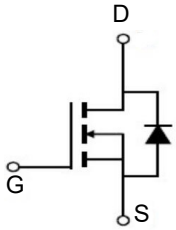
General Description

The MY10N10C use advanced SGT MOSFET technology to provide low $R_{DS(ON)}$, low gate charge, fast switching and excellent avalanche characteristics. This device is specially designed to get better ruggedness and suitable

Features

V_{DSS}	100	V
I_D	10	A
$P_D(T_A=25℃)$	3.5	W
$R_{DS(ON)}$(atV_{GS} =4.5V)	<18	mÝ





Application

- Consumer electronic power supply
- Motor control
- Synchronous-rectification
- Isolated DC
- Synchronous-rectification applications

Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
MY10N10C	SOP-8	018IN	3000

Absolute Maximum Ratings (T_C=25℃unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain source voltage	VDS	100	V
Gate source voltage	VGS	±20	V
Continuous drain current[1)]	ID	10	A
Pulsed drain current[2)]	ID, pulse	30	A
Power dissipation[3)]	P_D	3.5	W
Single pulsed avalanche energy[5)]	EAS	30	mJ
Operation and storage temperature	Tstg，Tj	-55 to 150	℃

Thermal Characteristics

Parameter	Symbol	Value	Unit
Thermal resistance, junction-ambient[4)]	RθJA	35.7	℃/W

Electrical Characteristics (T_J=25 ℃, unless otherwise noted)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test condition
Drain-source breakdown voltage	BV_{DSS}	100			V	V_{GS}=0 V, I_D=250 μA
Gate threshold voltage	$V_{GS(th)}$	1.0		2.5	V	V_{DS}=V_{GS}, I_D=250 μA
Drain-source on-state resistance	$R_{DS(ON)}$			18	mΩ	V_{GS}=10 V, I_D=8 A
Drain-source on-state resistance	$R_{DS(ON)}$			26	mΩ	V_{GS}=4.5 V, I_D=6 A
Gate-source leakage current	I_{GSS}			100	nA	V_{GS}=20 V
				-100		V_{GS}=-20 V
Drain-source leakage current	I_{DSS}			1	μA	V_{DS}=100 V, V_{GS}=0 V
Input capacitance	C_{iss}		1190.6		pF	V_{GS}=0 V, V_{DS}=50 V, f=1 MHz
Output capacitance	C_{oss}		194.6		pF	
Reverse transfer capacitance	C_{rss}		4.1		pF	
Turn-on delay time	$t_{d(on)}$		17.8		ns	V_{GS}=10 V, V_{DS}=50 V, R_G=2.2 Ω, I_D=10 A
Rise time	t_r		3.9		ns	
Turn-off delay time	$t_{d(off)}$		33.5		ns	
Fall time	t_f		3.2		ns	
Total gate charge	Q_g		19.8		nC	I_D=8 A, V_{DS}=50 V, V_{GS}=10 V
Gate-source charge	Q_{gs}		2.4		nC	
Gate-drain charge	Q_{gd}		5.3		nC	
Gate plateau voltage	$V_{plateau}$		3.2		V	
Diode forward current	I_S			8	A	V_{GS}<V_{th}
Pulsed source current	I_{SP}			32		
Diode forward voltage	V_{SD}			1.3	V	I_S=8 A, V_{GS}=0 V
Reverse recovery time	t_{rr}		50.2		ns	I_S=8 A, di/dt=100 A/μs
Reverse recovery charge	Q_{rr}		95.1		nC	
Peak reverse recovery current	I_{rrm}		2.5		A	

Note

1) Calculated continuous current based on maximum allowable junction temperature.
2) Repetitive rating; pulse width limited by max. junction temperature.
3) Pd is based on max. junction temperature, using junction-case thermal resistance.
4) The value of $R_{\theta JA}$ is measured with the device mounted on 1 in 2 FR-4 board with 2oz. Copper, in a still air environment with T_a=25 ℃.
5) V_{DD}=50 V, R_G=25 Ω, L=0.3 mH, starting T_j=25 ℃.

Typical Characteristics

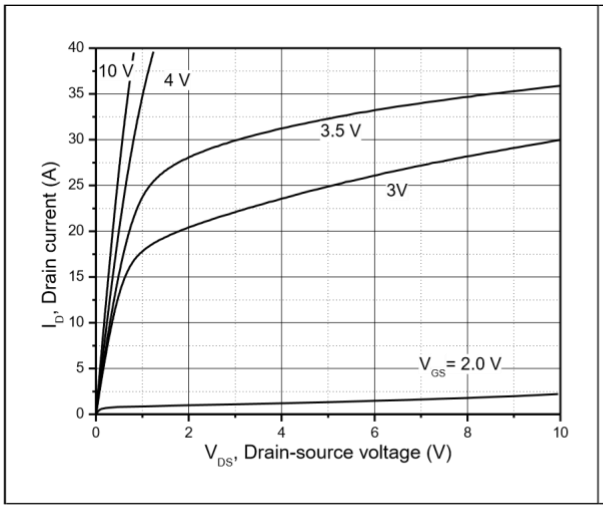


Figure 1, Typ. output characteristics

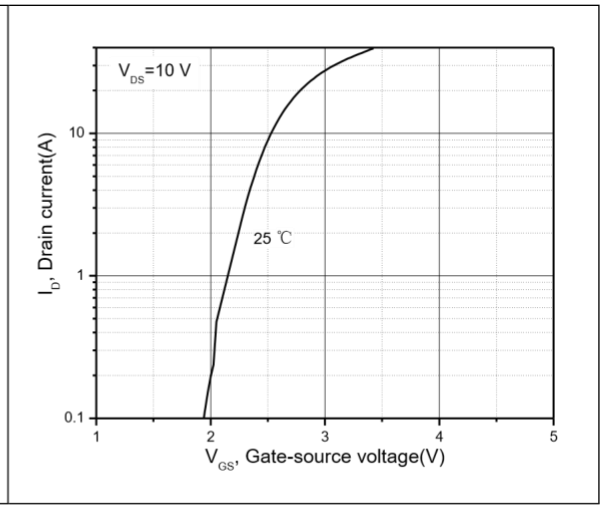


Figure 2, Typ. transfer characteristics

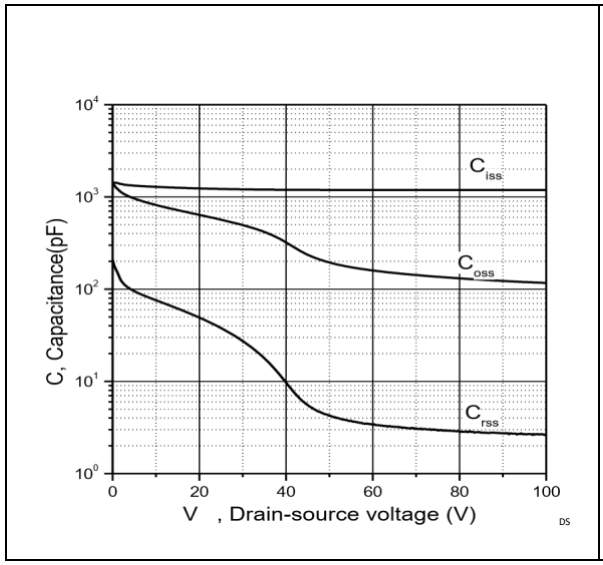


Figure 3, Typ. capacitances

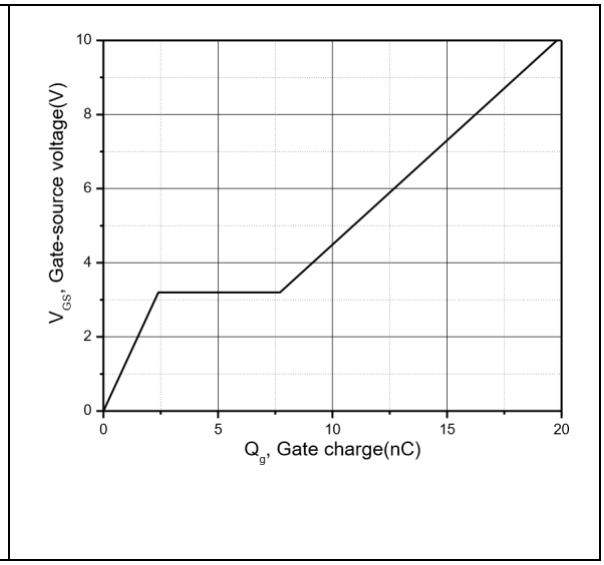


Figure 4, Typ. gate charge

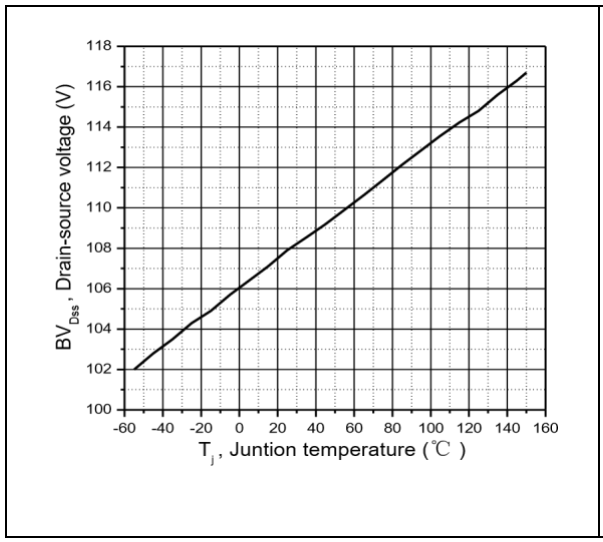


Figure 5, Drain-source breakdown voltage

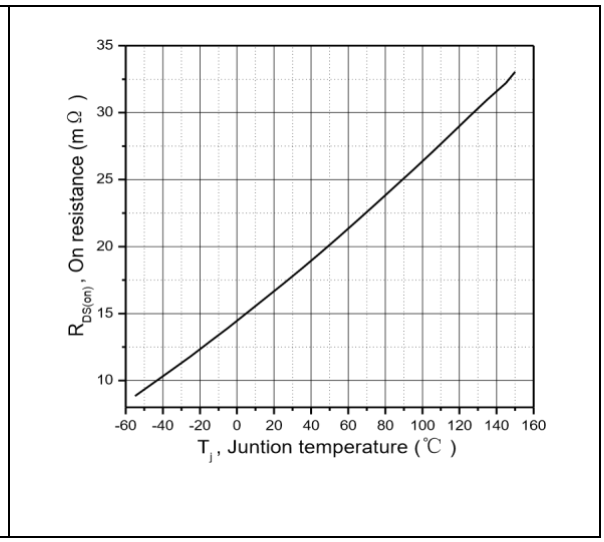


Figure 6, Drain-source on-state resistance

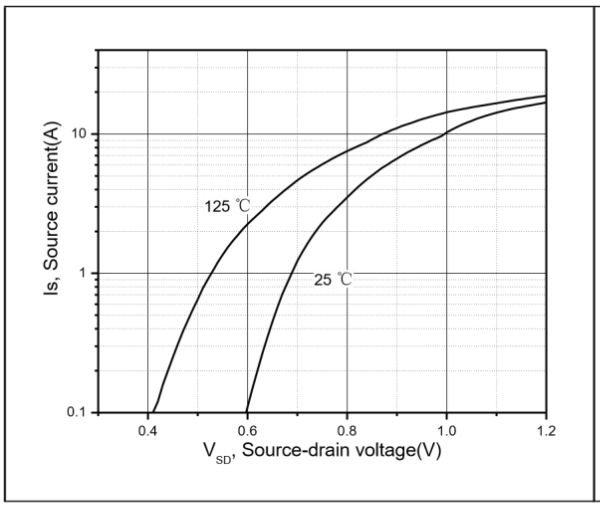


Figure 7, Forward characteristic of body diode

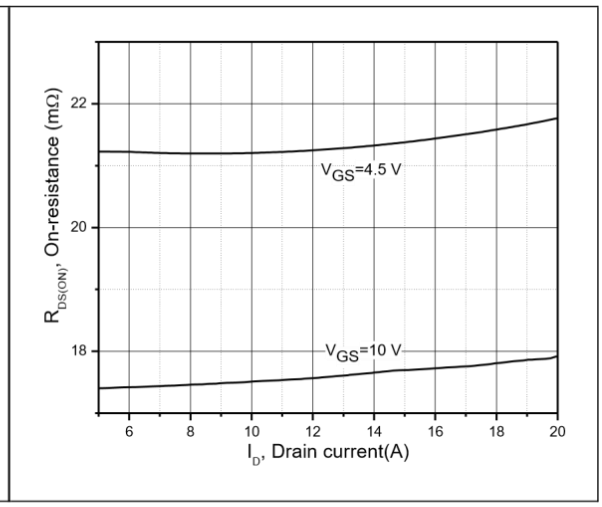


Figure 8, Drain-source on-state resistance

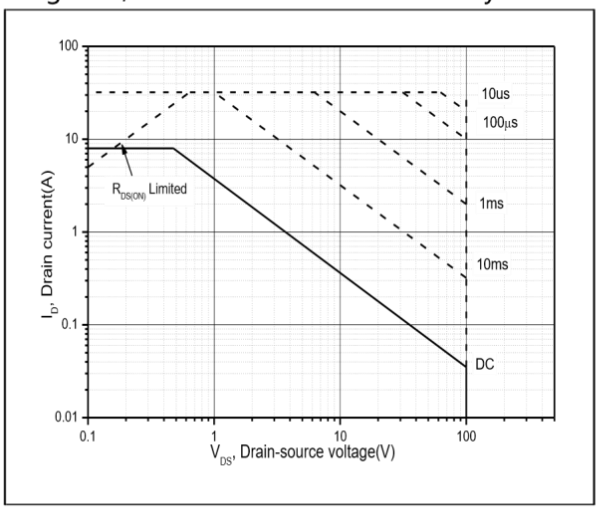


Figure 9, Safe operation area T_C=25 ℃

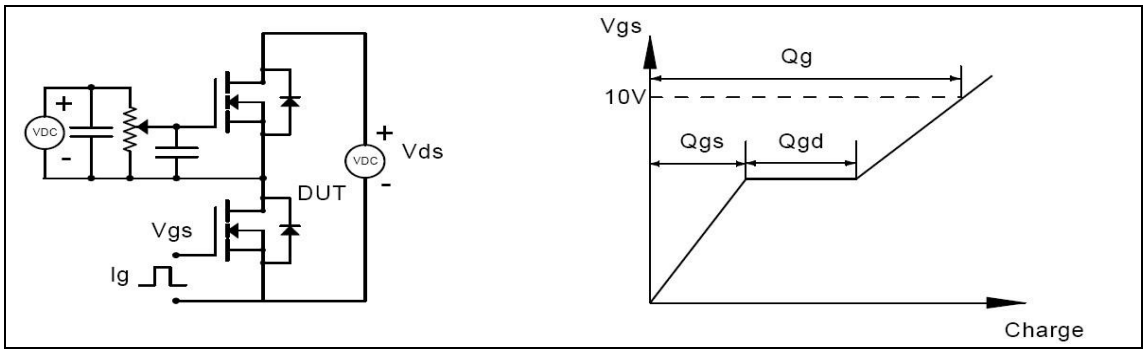


Figure 1, Gate charge test circuit & waveform

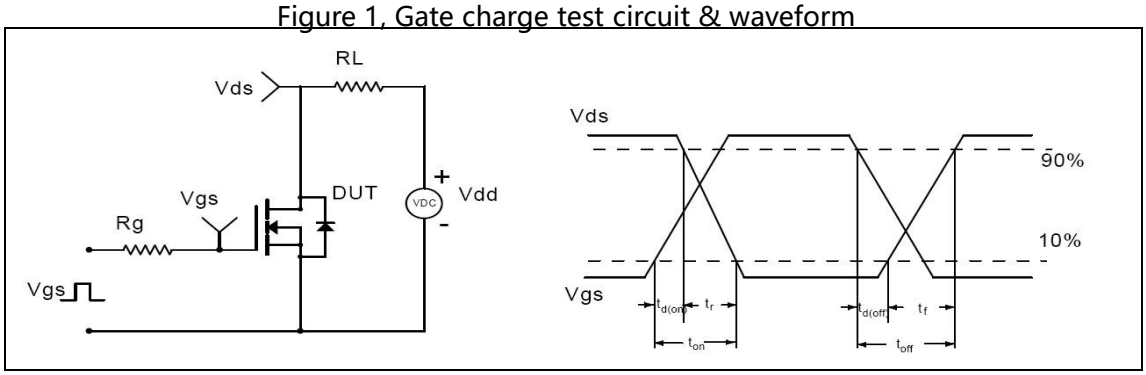


Figure 2, Switching time test circuit & waveforms

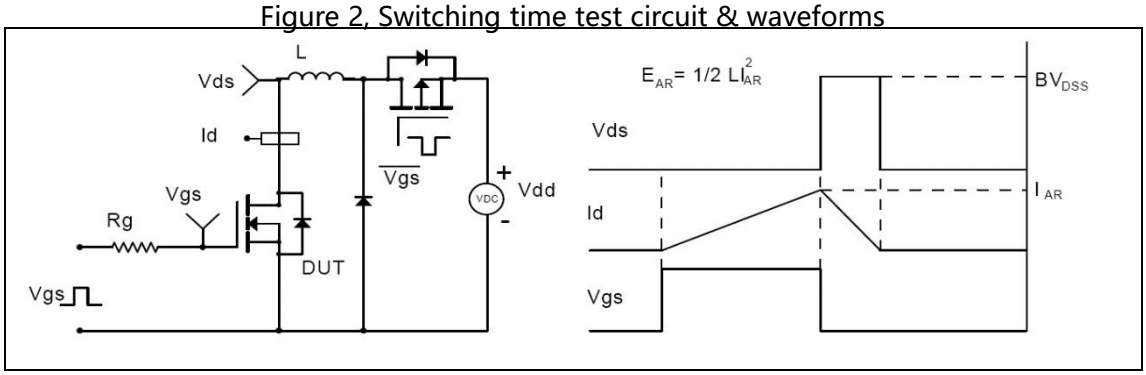


Figure 3, Unclamped inductive switching (UIS) test circuit & waveforms

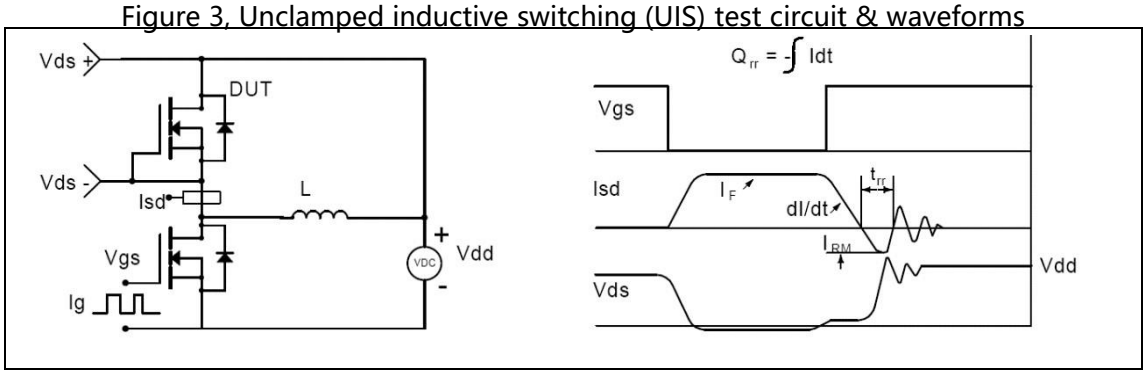
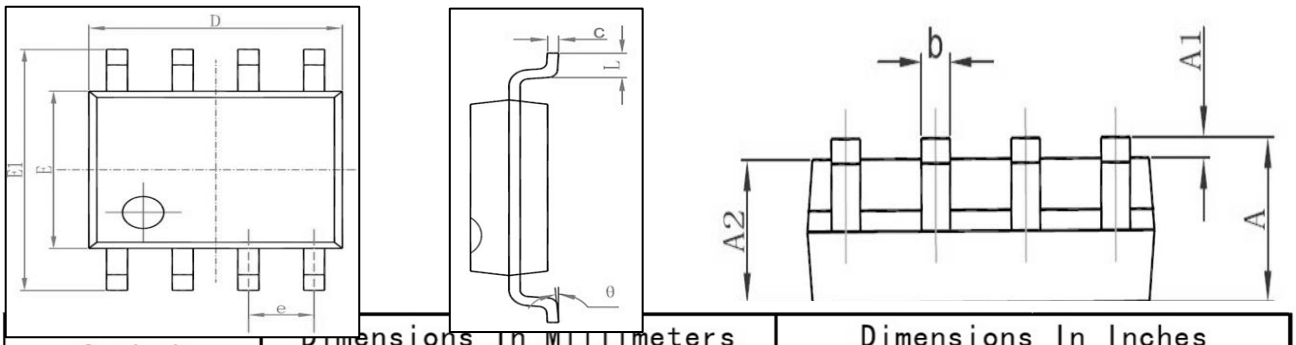
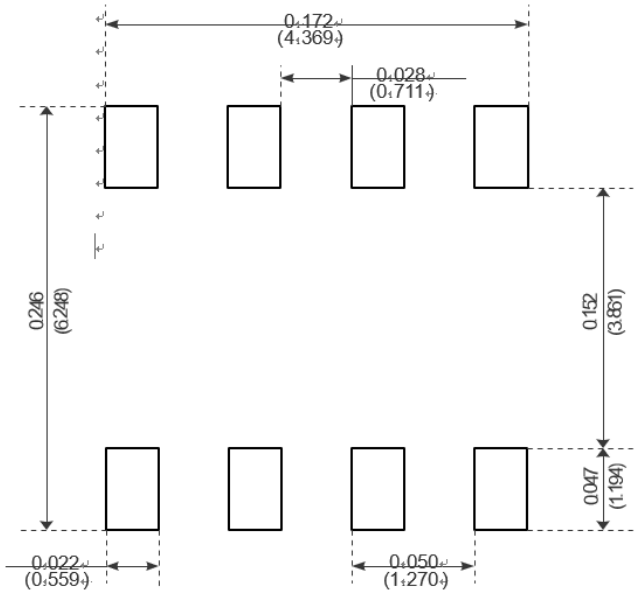


Figure 4, Diode reverse recovery test circuit & waveforms

Package Mechanical Data-SOP-8



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.006	0.010
D	4.700	5.100	0.185	0.200
E	3.800	4.000	0.150	0.157
E1	5.800	6.200	0.228	0.244
e	1.270 (BSC)		0.050 (BSC)	
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°



Recommended Minimum Pads