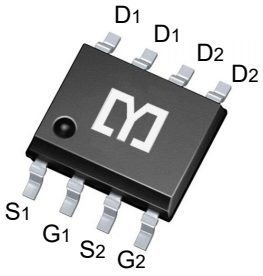
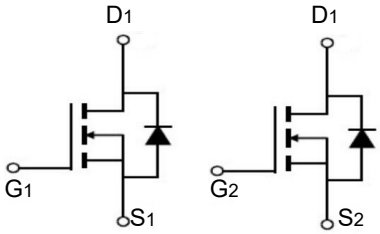
General Description

The MY12B03C is the highest performance trench N-CH MOSFETs with extreme high cell density, which provide excellent R_{DSON} and gate charge for most of the small power switching and load switch applications. The meet the RoHS and Product requirement with full function reliability approved.

Features

V_{DSS}	20	V
I_D	4.5	A
$R_{DS(ON)}$(atV_{GS}=4.5V)	<40	mΩ
$R_{DS(ON)}$(atV_{GS}=2.5V)	<55	mΩ





Application

- Battery protection
- Load switch
- PWM application

Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
MY12B03C	SOP-8	12B03C	3000

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

Parameter	Symbol	Limit	Unit
Drain-source Voltage	V_{DS}	20	V
Gate-source Voltage	V_{GS}	±8	V
Drain Current	I_D	4.5	A
Pulsed Drain Current [A]	I_{DM}	20	A
Total Power Dissipation @ T_A=25℃	P_D	1.25	W
Thermal Resistance Junction-to-Ambient @ Steady State [B]	$R_{\theta JA}$	125	℃/ W
Junction and Storage Temperature Range	T_J ,T_{STG}	-55～+150	℃

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

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Static Parameter						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}= 0V, I_D=250μA	20			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=15V,V_{GS}=0V,T_C=25℃			1	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS}= ±8V, V_{DS}=0V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}= V_{GS}, I_D=250μA	0.45	0.7	1.2	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}= 4.5V, I_D=6.0A		30	40	mΩ
		V_{GS}= 2.5V, I_D=5.0A		35	55	
Diode Forward Voltage	V_{SD}	I_S=4.0A,V_{GS}=0V			1.2	V
Maximum Body-Diode Continuous Current	I_S				6.0	A
Dynamic Parameters						
Input Capacitance	C_{iss}	V_{DS}=15V,V_{GS}=0V,f=1MHZ		290		pF
Output Capacitance	C_{oss}			57		
Reverse Transfer Capacitance	C_{rss}			46		
Switching Parameters						
Total Gate Charge	Q_g	V_{GS}=4.5V,V_{DS}=10V,I_D=4.0A		6.6		nC
Gate Source Charge	Q_{gs}			0.7		
Gate Drain Charge	Q_{gd}			1.7		
Turn-on Delay Time	$t_{D(on)}$	V_{GS}=4.5V,V_{DD}=10V, I_D=1.0A, R_{GEN}=3Ω		3.3		ns
Turn-on Rise Time	t_r			9.6		
Turn-off Delay Time	$t_{D(off)}$			22.1		
Turn-off Fall Time	t_f			6.4		

A. Pulse Test: Pulse Width≤300us,Duty cycle ≤2%.
B. Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch.

Typical Characteristics

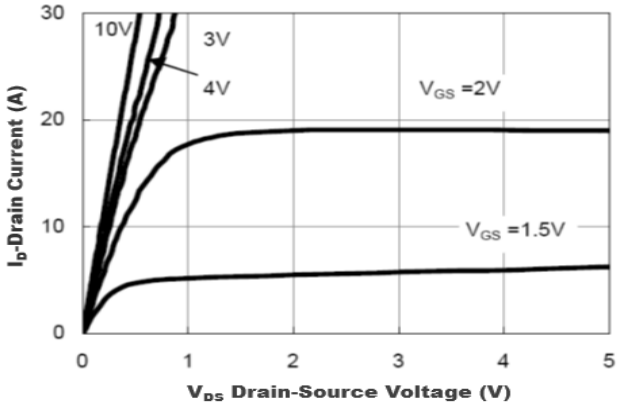


Figure1. Output Characteristics

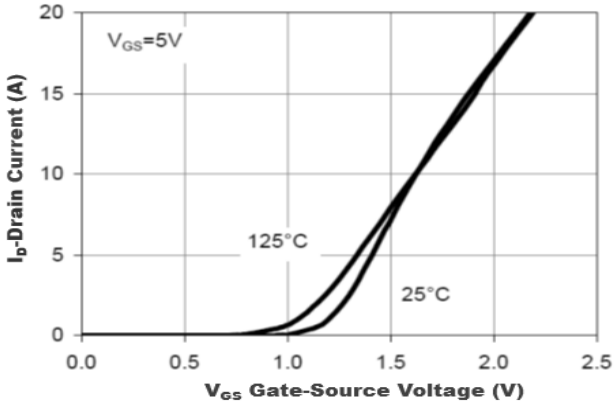


Figure2. Transfer Characteristics

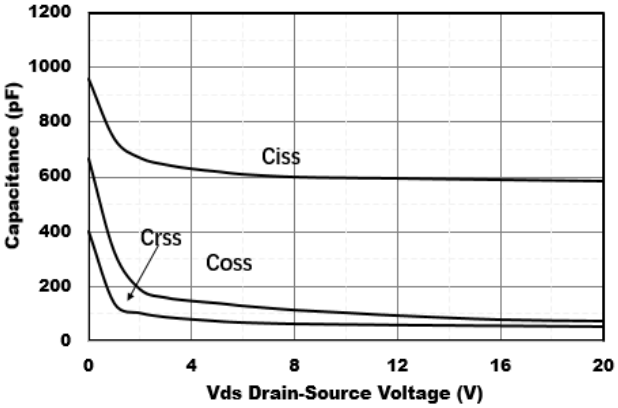


Figure3. Capacitance Characteristics

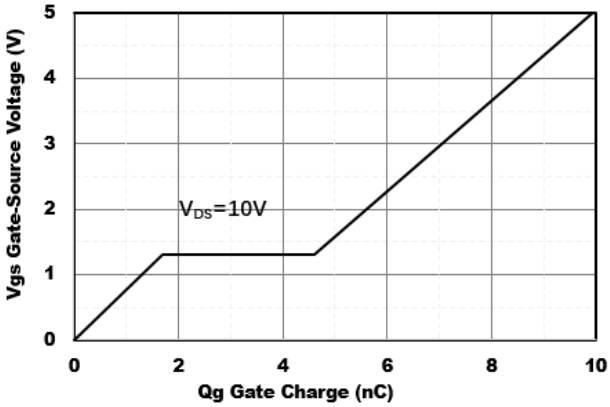


Figure4. Gate Charge

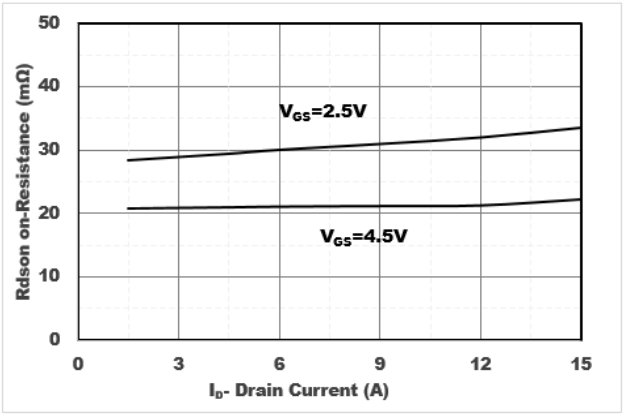


Figure5. Drain-Source on Resistance

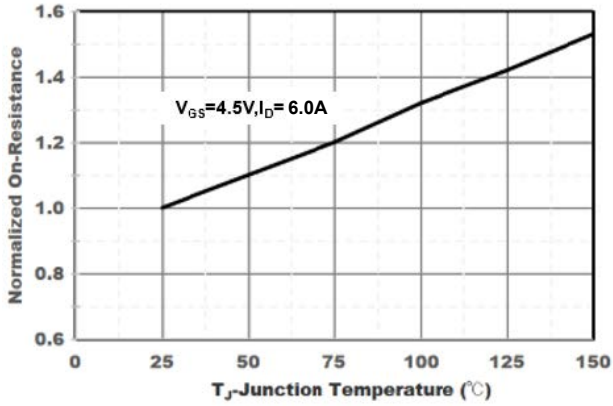


Figure6. Drain-Source on Resistance

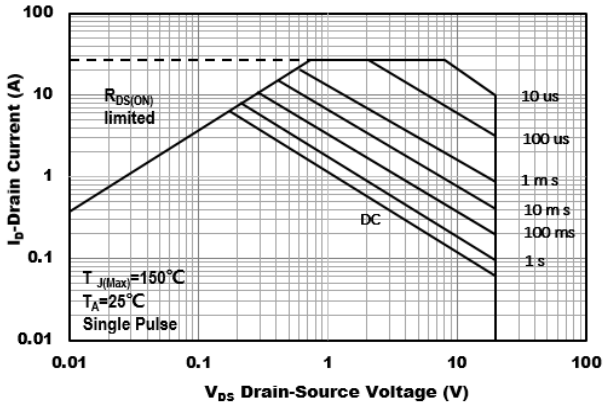


Figure7. Safe Operation Area

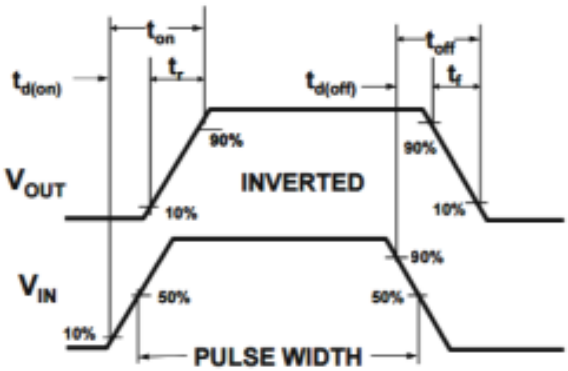
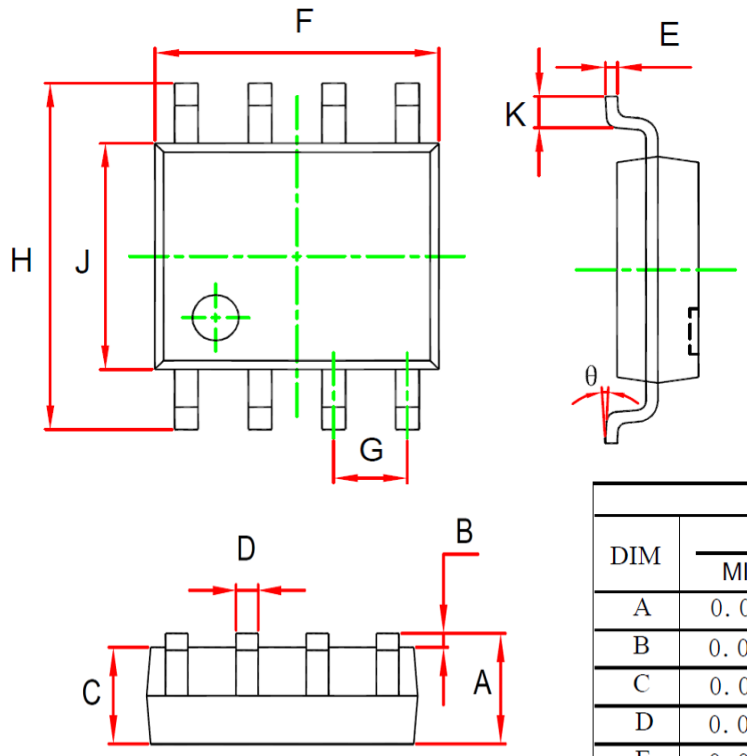


Figure8. Switching wave

Package Mechanical Data-SOP-8



DIMENSIONS					
DIM	INCHES		MM		
	MIN	MAX	MIN	MAX	NOTE
A	0.053	0.069	1.350	1.750	
B	0.004	0.010	0.100	0.250	
C	0.053	0.061	1.350	1.550	
D	0.013	0.020	0.330	0.510	
E	0.007	0.010	0.170	0.250	
F	0.189	0.197	4.800	5.000	
G	0.050 (BSC)		1.270 (BSC)		
H	0.228	0.244	5.800	6.200	
J	0.150	0.157	3.800	4.000	
K	0.016	0.050	0.400	1.270	
θ	0°	8°	0°	8°	