

General Description

The MY6B03C is the highest performance trench N-ch MOSFETs with extreme high cell density, which provide excellent $R_{DS(ON)}$ and gate charge for most of the small power switching and load switch applications.

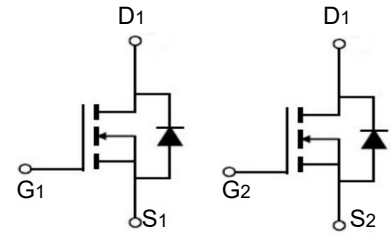
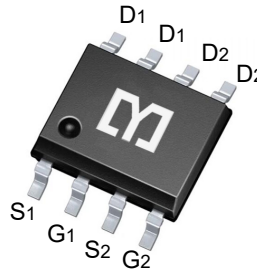


Features

V_{DSS}	30	V
I_D	6	A
$R_{DS(ON)}$ (at $V_{GS}=10V$)	<20	$m\Omega$
$R_{DS(ON)}$ (at $V_{GS}=4.5V$)	<30	$m\Omega$

Application

- Battery protection
- Load switch
- Uninterruptible power supply



Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
MY6B03C	SOP-8	6B03C	3000

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

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	30	V
V_{GS}	Gate-Source Voltage	± 20	V
I_D	Drain Current – Continuous ($T_C=25^\circ C$)	6.0	A
	Drain Current – Continuous ($T_C=100^\circ C$)	4.8	A
I_{DM}	Drain Current – Pulsed ¹	30	A
EAS	Single Pulse Avalanche Energy ²	14	mJ
IAS	Single Pulse Avalanched Current ²	17	A
P_D	Power Dissipation ($T_C=25^\circ C$)	2.1	W
	Power Dissipation – Derate above $25^\circ C$	0.017	W/ $^\circ C$
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ C$
T_J	Operating Junction Temperature Range	-55 to 150	$^\circ C$



Electrical Characteristics (T_J=25 °C, unless otherwise noted)

Symbol	Parameter	Typ.	Max.	Unit
R _{θJA}	Thermal Resistance Junction to ambient	---	60	°C/W

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250uA	30	---	---	V
ΔBV _{DSS} /ΔT _J	BV _{DSS} Temperature Coefficient	Reference to 25°C □ I _D =1mA	---	0.04	---	V/°C
I _{DSS}	Drain-Source Leakage Current	V _{DS} =30V, V _{GS} =0V, T _J =25°C	---	---	1	uA
		V _{DS} =24V, V _{GS} =0V, T _J =125°C	---	---	10	uA
I _{GSS}	Gate-Source Leakage Current	V _{GS} =±20V, V _{DS} =0V	---	---	±100	nA

R _{DS(ON)}	Static Drain-Source On-Resistance ³	V _{GS} =10V, I _D =6A	---	15	20	mΩ
		V _{GS} =4.5V, I _D =3A	---	23	30	mΩ
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =250uA	1.2	1.5	2.5	V
ΔV _{GS(th)}	V _{GS(th)} Temperature Coefficient		---	-4	---	mV/°C
g _{fs}	Forward Transconductance	V _{DS} =10V, I _D =6A	---	13	---	S

Q _g	Total Gate Charge ^{3, 4}	V _{DS} =15V, V _{GS} =4.5V, I _D =5A	---	4.1	8	nC
Q _{gs}	Gate-Source Charge ^{3, 4}		---	1	2	
Q _{gd}	Gate-Drain Charge ^{3, 4}		---	2.1	4	
T _{d(on)}	Turn-On Delay Time ^{3, 4}	V _{DD} =15V, V _{GS} =10V, R _G =6 I _D =1A	---	2.6	5	ns
T _r	Rise Time ^{3, 4}		---	7.2	14	
T _{d(off)}	Turn-Off Delay Time ^{3, 4}		---	15.8	30	
T _f	Fall Time ^{3, 4}		---	4.6	9	
C _{iss}	Input Capacitance	V _{DS} =25V, V _{GS} =0V, F=1MHz	---	345	500	pF
C _{oss}	Output Capacitance		---	55	80	
C _{rss}	Reverse Transfer Capacitance		---	32	55	
R _g	Gate resistance	V _{GS} =0V, V _{DS} =0V, f=1MHz	---	3.2	6.4	Ω

I _S	Continuous Source Current	V _G =V _D =0V, Force Current	---	---	7.5	A
I _{SM}	Pulsed Source Current ³		---	---	30	A
V _{SD}	Diode Forward Voltage ³	V _{GS} =0V, I _S =1A, T _J =25°C	---	---	1	V
t _{rr}	Reverse Recovery Time	V _{GS} =0V, I _S =1A, di/dt=100A/	---	---	---	ns
Q _{rr}	Reverse Recovery Charge	μs T _J =25°C	---	---	---	nC

Note :

1. Repetitive Rating : Pulsed width limited by maximum junction temperature.
2. VThe data tested by pulsed , pulse width DD=25V,VGS=10V,L=0.1mH,IAS=17A.,RG≤25 300us , duty cycle ,Starting T_J=25≤°C. 2%.
3. Essentially independent of operating temperature.

Typical Characteristics

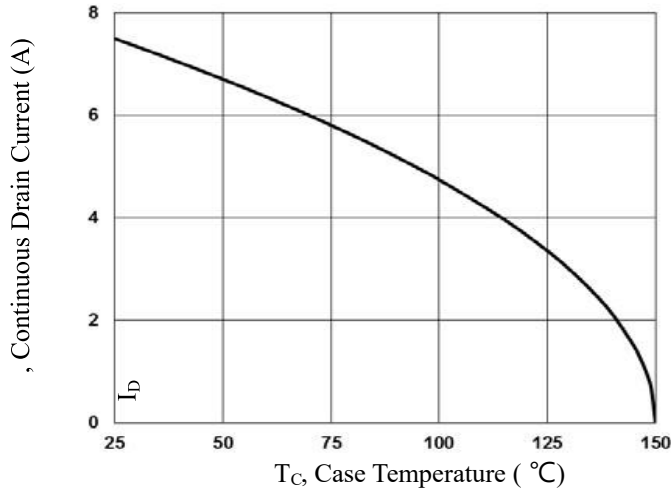


Fig.1 Continuous Drain Current vs. T_c

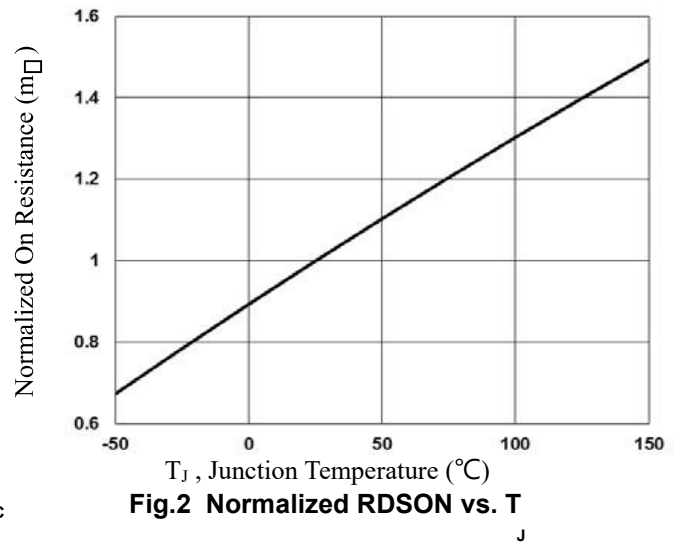


Fig.2 Normalized RD_{SON} vs. T_J

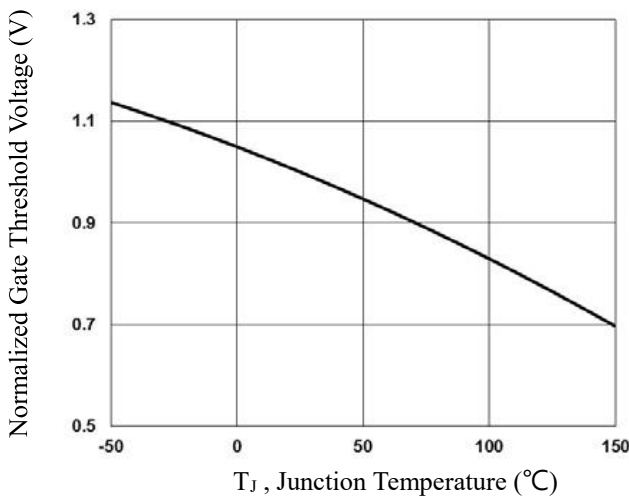


Fig.3 Normalized V_{th} vs. T_J

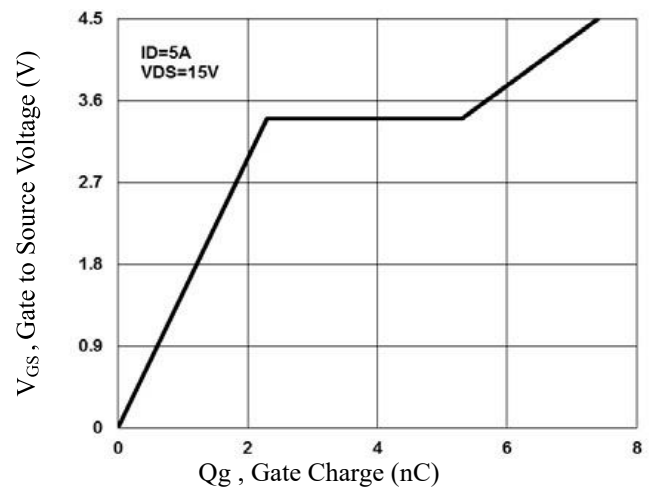


Fig.4 Gate Charge Waveform

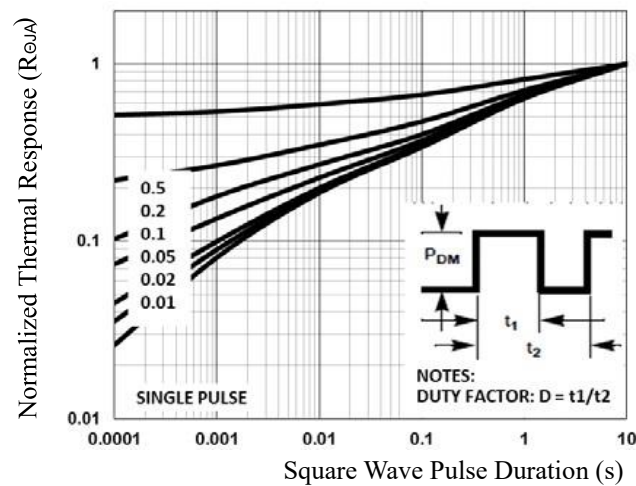


Fig.5 Normalized Transient Response

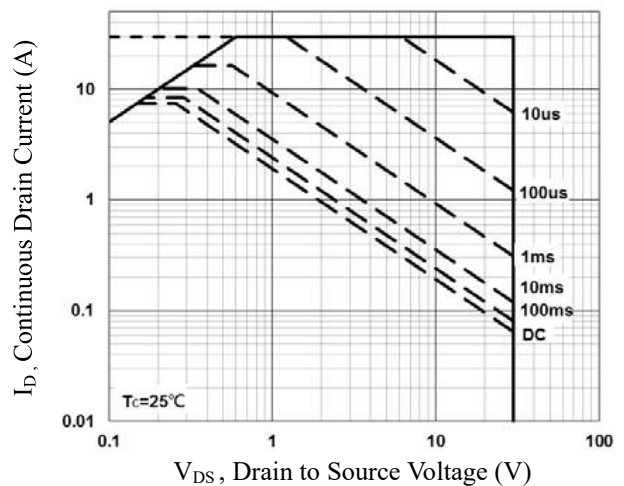


Fig.6 Maximum Safe Operation Area

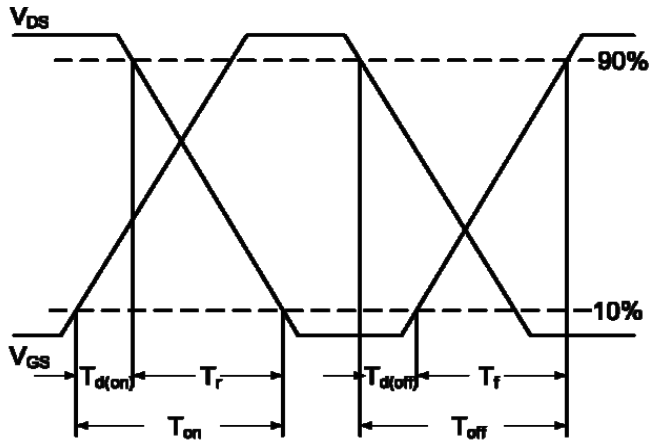


Fig.7 Switching Time Waveform

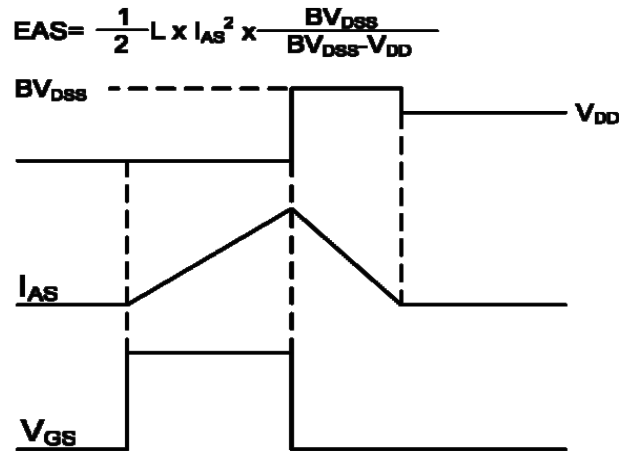
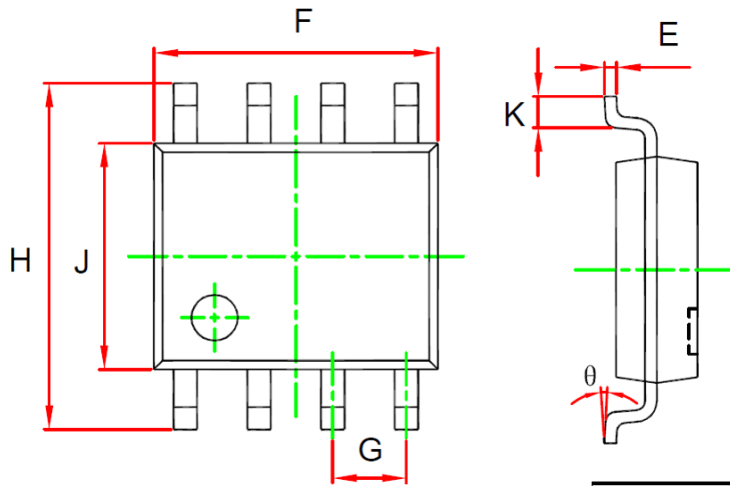


Fig.8 EAS waveform

Package Mechanical Data-SOP-8



DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
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°	