

General Description

The MY8B06C uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 4.5V. This device is suitable for use as a Battery protection or in other Switching application.

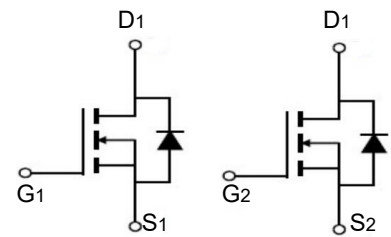
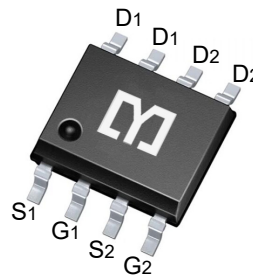


Features

V_{DSS}	60	V
I_D	8	A
$R_{DS(ON)}$ (at $V_{GS}=10V$)	28	m Ω
$R_{DS(ON)}$ (at $V_{GS}=4.5V$)	36	m Ω

Application

- Battery protection
- Load switch
- Uninterruptible power supply



Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
MY8B06C	SOP-8	MY8B06C	3000

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

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	60	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D@T_A=25^\circ\text{C}$	Continuous Drain Current, $V_{GS} @ 10V^1$	8.0	A
$I_D@T_A=70^\circ\text{C}$	Continuous Drain Current, $V_{GS} @ 10V^1$	4.5	A
I_{DM}	Pulsed Drain Current ²	22	A
EAS	Single Pulse Avalanche Energy ³	22	mJ
I_{AS}	Avalanche Current	23	A
$P_D@T_A=25^\circ\text{C}$	Total Power Dissipation ⁴	1.5	W
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ\text{C}$
T_J	Operating Junction Temperature Range	-55 to 150	$^\circ\text{C}$

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient ¹	---	85	$^\circ\text{C}/\text{W}$
$R_{\theta JC}$	Thermal Resistance Junction-Case ¹	---	25	$^\circ\text{C}/\text{W}$



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

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
Off Characteristic						
V _{(BR)DSS}	Drain- Source Breakdown Voltage	V _{GS} =0V, I _D =250μA	60	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =60V, V _{GS} = 0V,	-	-	1.0	μA
I _{GSS}	Gate to Body Leakage Current	V _{DS} =0V, V _{GS} = ±20V	-	-	± 100	nA
On Characteristics						
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250μA	1.0	1.6	2.5	V
R _{DS(on)}	Static Drain- Source on- Resistance <small>note3</small>	V _{GS} =10V, I _D =5A	-	28	40	mΩ
		V _{GS} =4.5V, I _D =3A	-	36	50	
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =25V, V _{GS} =0V, f=1.0MHz	-	1148	-	pF
C _{oss}	Output Capacitance		-	58.5	-	pF
C _{rss}	Reverse Transfer Capacitance		-	49.4	-	pF
Q _g	Total Gate Charge	V _{DS} =30V, I _D =2.5A, V _{GS} =10V	-	20.3	-	nC
Q _{gs}	Gate- Source Charge		-	3.7	-	nC
Q _{gd}	Gate-Drain("Miller") Charge		-	5.3	-	nC
Switching Characteristics						
t _{d(on)}	Turn- on Delay Time	V _{DS} =30V, I _D =5A, R _G =1.8Ω , V _{GS} =10V	-	7.6	-	ns
t _r	Turn- on Rise Time		-	20	-	ns
t _{d(off)}	Turn- off Delay Time		-	15	-	ns
t _f	Turn- off Fall Time		-	24	-	ns
Drain- Source Diode Characteristics and Maximum Ratings						
I _S	Maximum Continuous Drain to Source Diode Forward		-	-	5	A
I _{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	20	A
V _{SD}	Drain to Source Diode Forward	V _{GS} =0V, I _S =5A	-	-	1.2	V
t _{rr}	Body Diode Reverse Recovery Time	I _F =5A, di/dt=100A/μs	-	29	-	ns
Q _{rr}	Body Diode Reverse Recove		-	43	-	nC

Notes:1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature

2. EAS condition : T_J=25 °C, V_{DD}=30V, V_G=10V, L=0.5mH, R_G=25Ω, I_{AS}=8.7A

3. Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%

Typical Characteristics

Figure 1: Output Characteristics

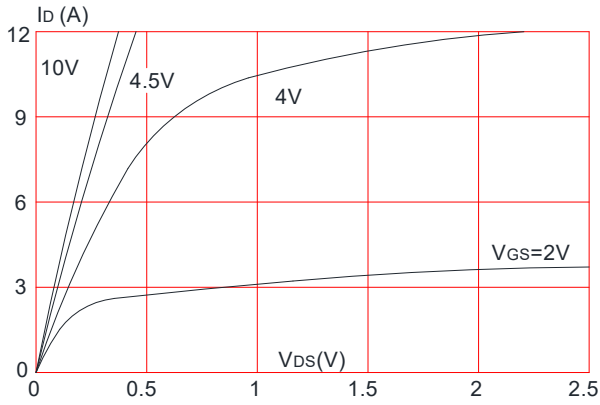


Figure 2: Typical Transfer Characteristics

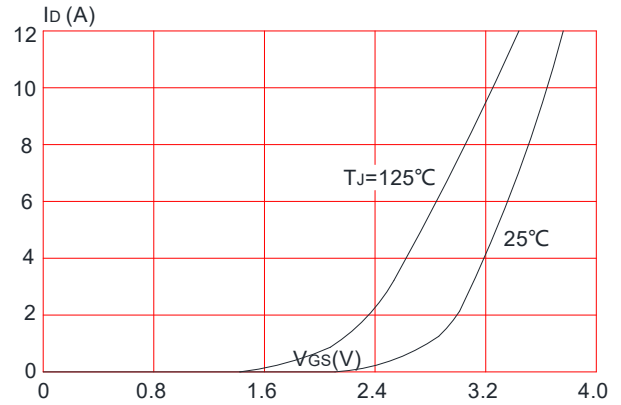


Figure 3: On-resistance vs. Drain Current

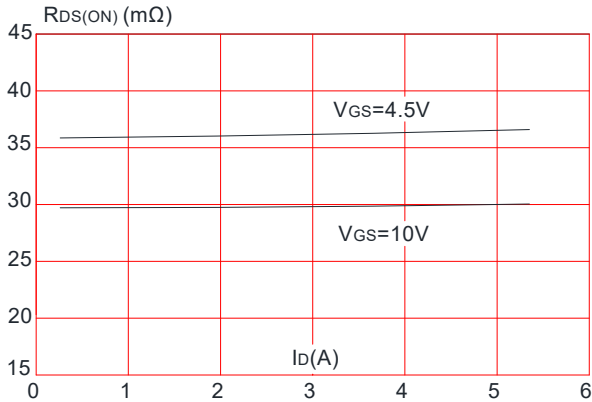


Figure 4: Body Diode Characteristics

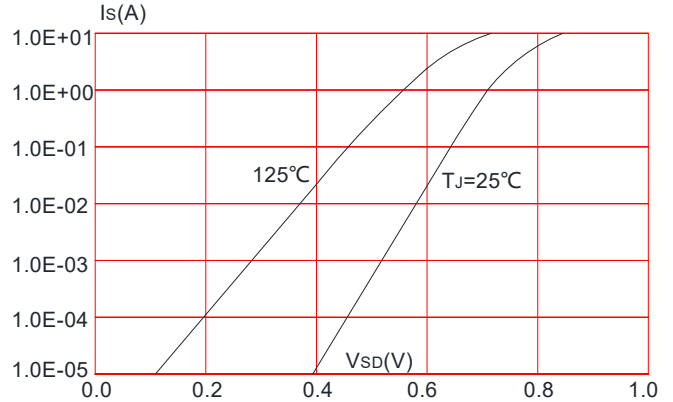


Figure 5: Gate Charge Characteristics

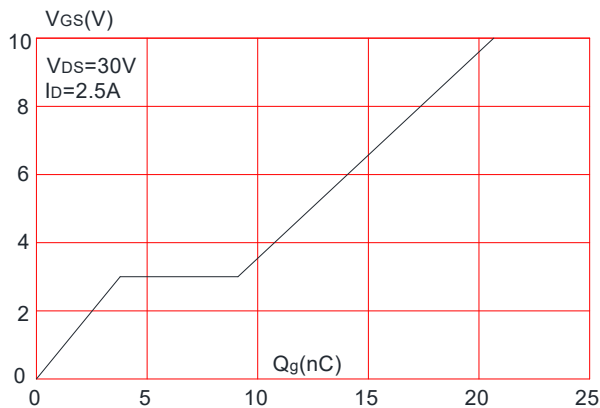


Figure 6: Capacitance Characteristics

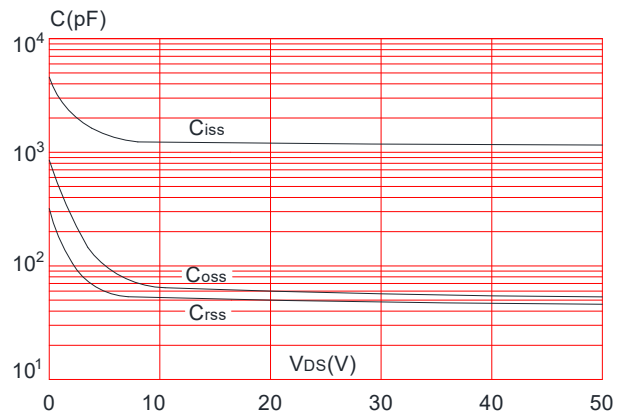


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

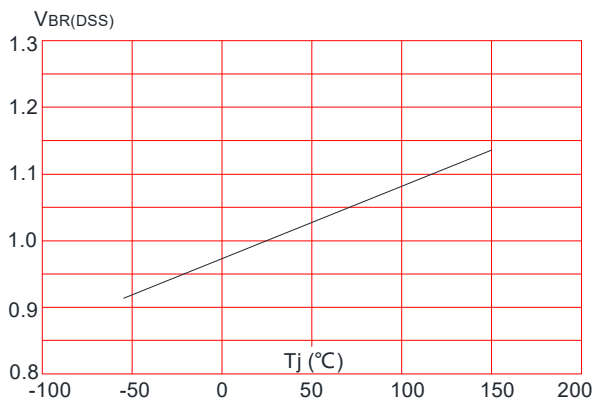


Figure 8: Normalized on Resistance vs. Junction Temperature

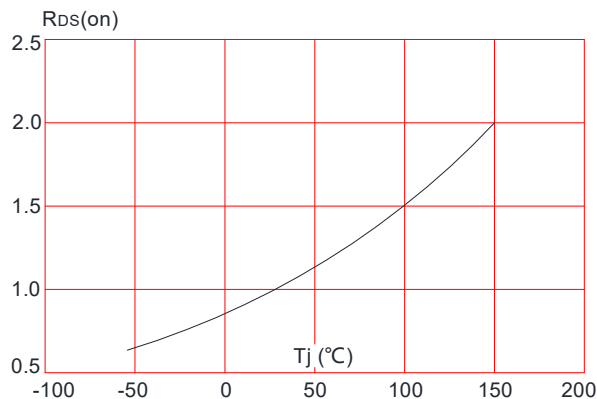


Figure 9: Maximum Safe Operating Area

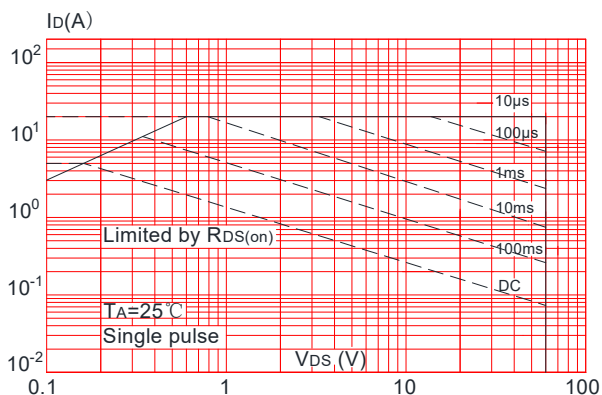


Figure 10: Maximum Continuous Drain Current vs. Ambient Temperature

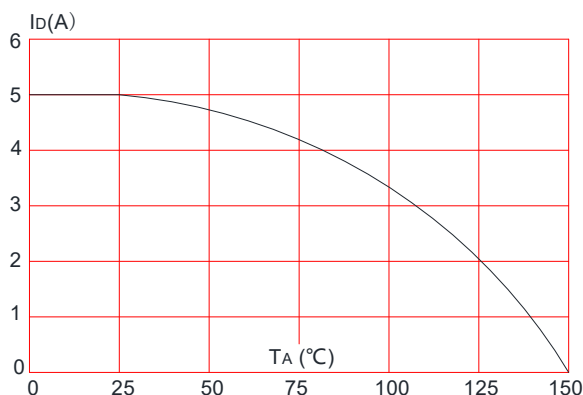
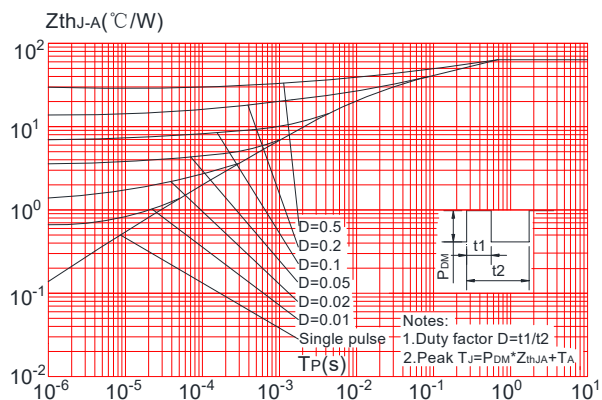
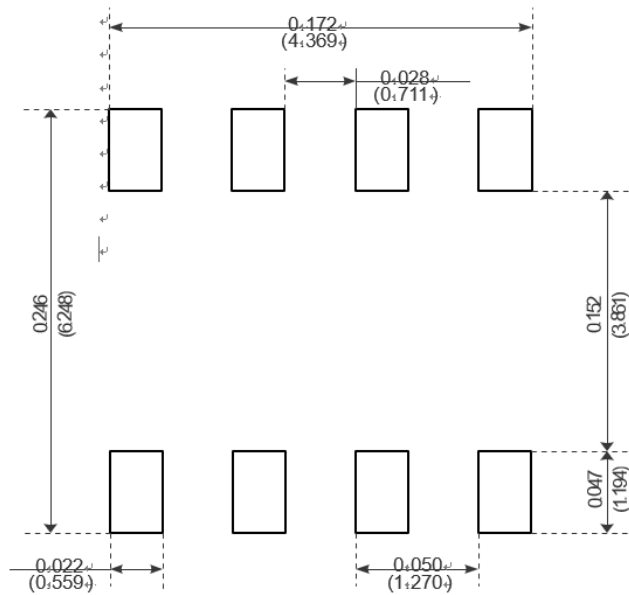
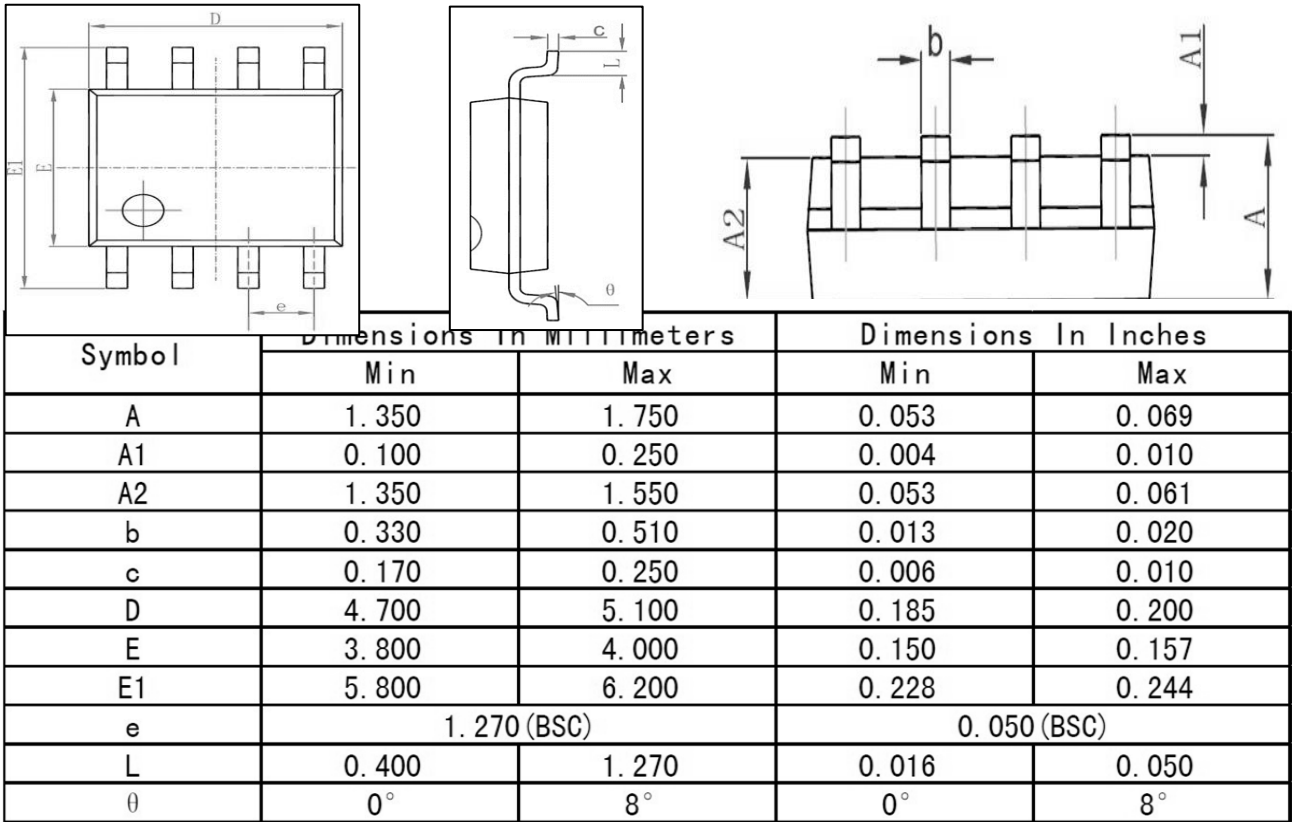


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Ambient





Package Mechanical Data-SOP-8



Recommended Minimum Pads