

General Description

The MY5B06C uses advanced trench technology to provide excellent RDS(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.

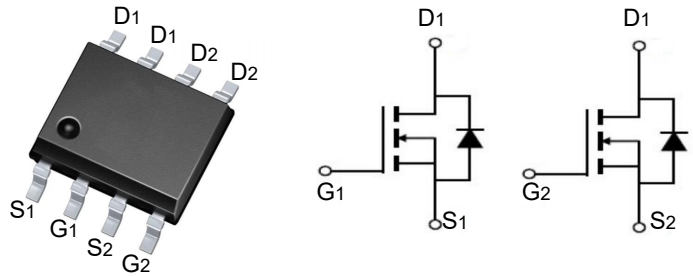


Features

V _{DSS}	60	V
I _D	5	A
P _D (T _C =25°C)	2.0	W
R _{DS(ON)} (at V _{GS} =10V)	<80	mΩ

Application

- Battery protection
- Load switch
- Uninterruptible power supply



Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
MY5B06C	SOP-8	5B06C	3000

Absolute Maximum Ratings (T_C=25°C unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V _{DS}	60	V
Gate-Source Voltage	V _{GS}	±20	V
Drain Current-Continuous	I _D	5	A
Drain Current-Continuous(T _C =100°C)	I _D (100°C)	3.5	A
Pulsed Drain Current	I _{DM}	20	A
Maximum Power Dissipation	P _D	2.0	W
Operating Junction and Storage Temperature Range	T _J , T _{STG}	-55 To 150	°C
Thermal Resistance, Junction-to-Ambient (Note 2)	R _{θJA}	60	°C/W

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

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V I _D =250μA	60		-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =60V, V _{GS} =0V	-	-	1	μA
Gate-Body Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V	-	-	±100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1.0	1.6	2.2	V
Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =8A	-	60	80	mΩ
		V _{GS} =4.5V, I _D =8A	-	70	100	mΩ
Forward Transconductance	g _{FS}	V _{DS} =5V, I _D =8A	11	-	-	S
Input Capacitance	C _{iss}	V _{DS} =30V, V _{GS} =0V, F=1.0MHz	-	500	-	PF
Output Capacitance	C _{oss}		-	39	-	PF
Reverse Transfer Capacitance	C _{rss}		-	27	-	PF
Turn-on Delay Time	t _{d(on)}	V _{DD} =30V, R _L =1Ω V _{GS} =10V, R _{GEN} =3Ω	-	7	-	nS
Turn-on Rise Time	t _r		-	5.5	-	nS
Turn-Off Delay Time	t _{d(off)}		-	29	-	nS
Turn-Off Fall Time	t _f		-	4.5	-	nS
Total Gate Charge	Q _g	V _{DS} =30V, I _D =8A, V _{GS} =10V	-	38.5	-	nC
Gate-Source Charge	Q _{gs}		-	4.7	-	nC
Gate-Drain Charge	Q _{gd}		-	10.3	-	nC
Diode Forward Voltage ^(Note 3)	V _{SD}	V _{GS} =0V, I _S =8A	-	-	1.2	V
Diode Forward Current ^(Note 2)	I _S	-	-	-	8	A
Reverse Recovery Time	t _{rr}	T _J = 25°C, I _F =8A di/ dt = 100A/μs ^(Note3)	-	28	-	nS
Reverse Recovery Charge	Q _{rr}		-	40	-	nC

Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t ≤ 10 sec.
3. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
4. Guaranteed by design, not subject to production

Typical Characteristics

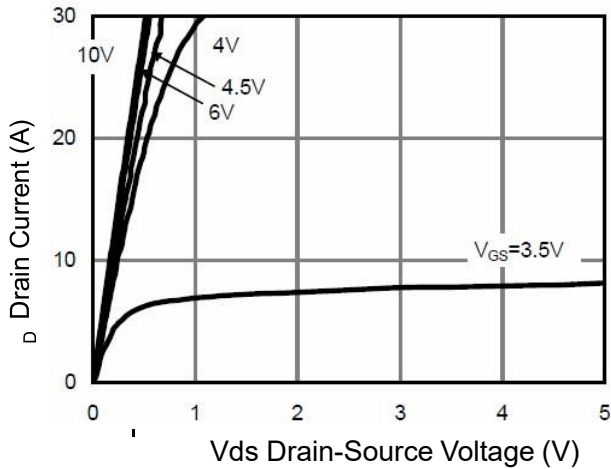


Figure 1 Output Characteristics

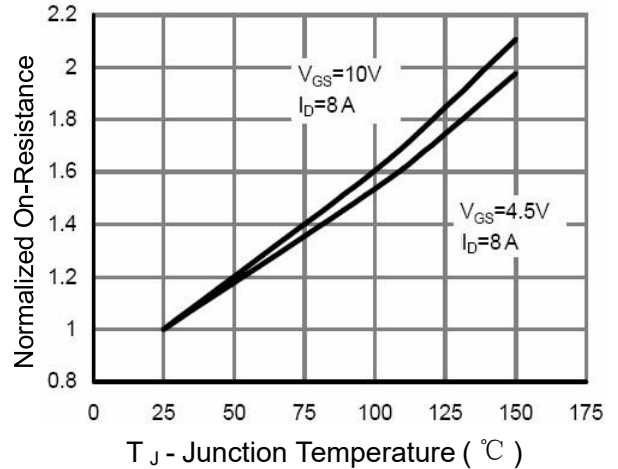


Figure 4 Rdson-Junction Temperature

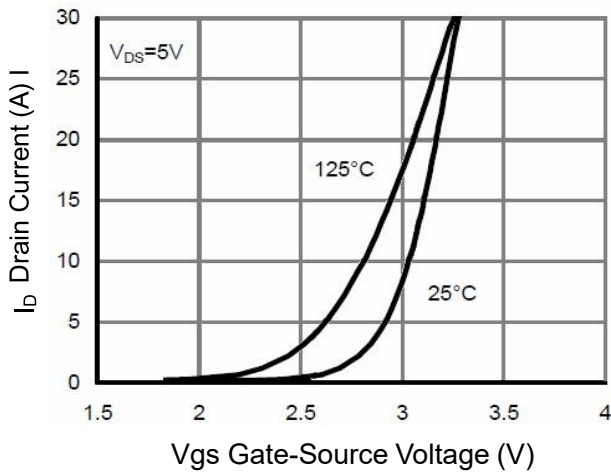


Figure 2 Transfer Characteristics

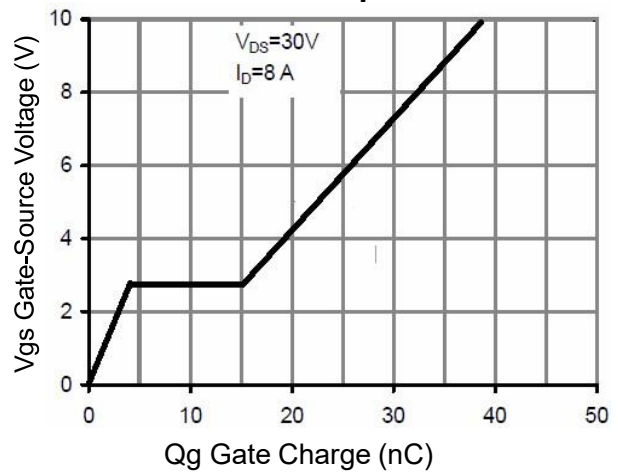


Figure 5 Gate Charge

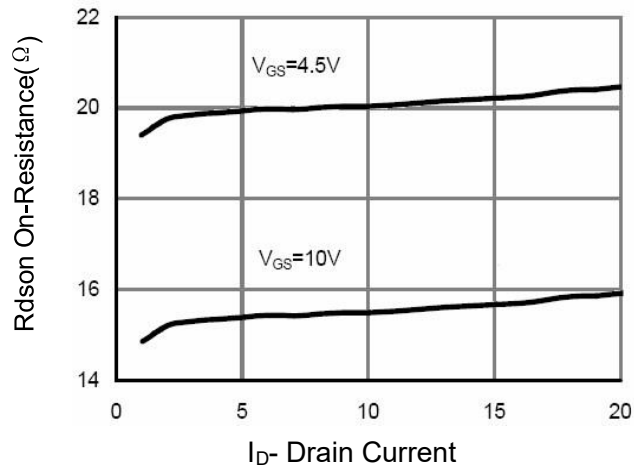


Figure 3 Rdson-Drain Current

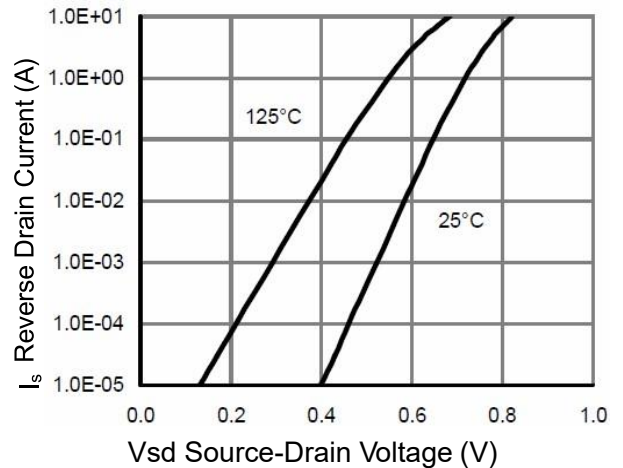


Figure 6 Source-Drain Diode Forward

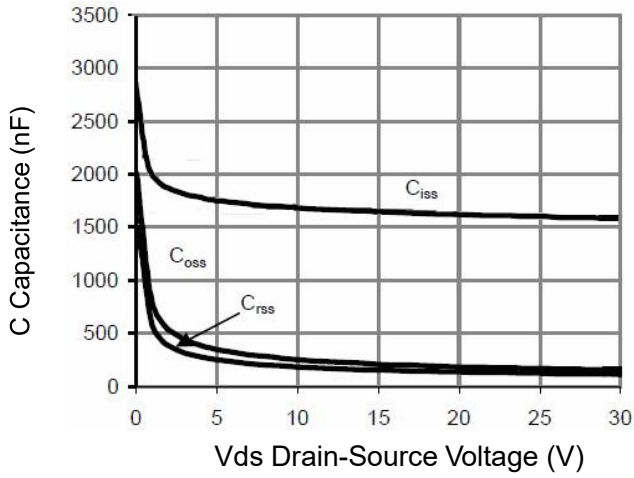


Figure 7 Capacitance vs Vds

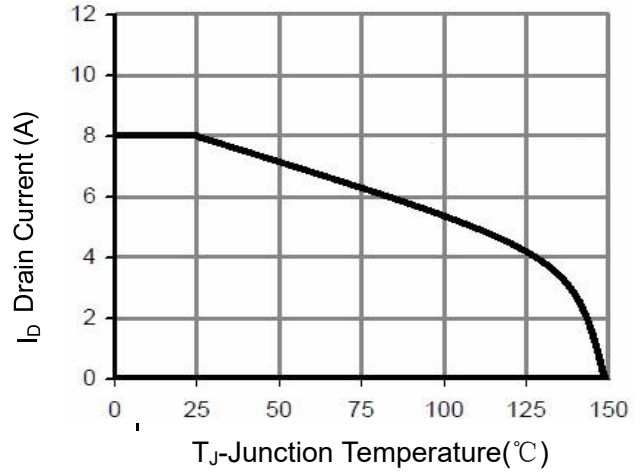


Figure 9 Current De-rating

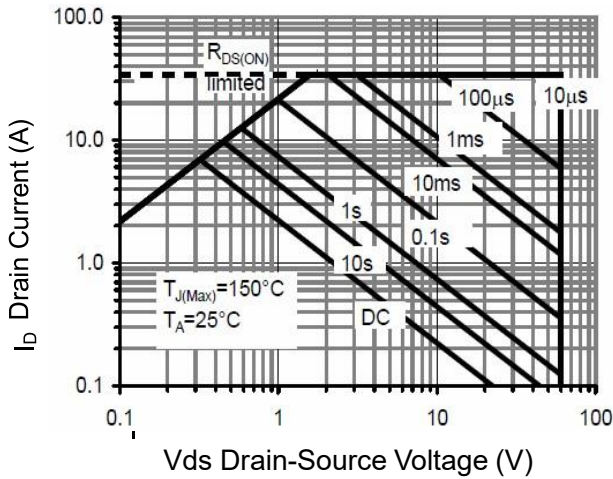


Figure 8 Safe Operation Area

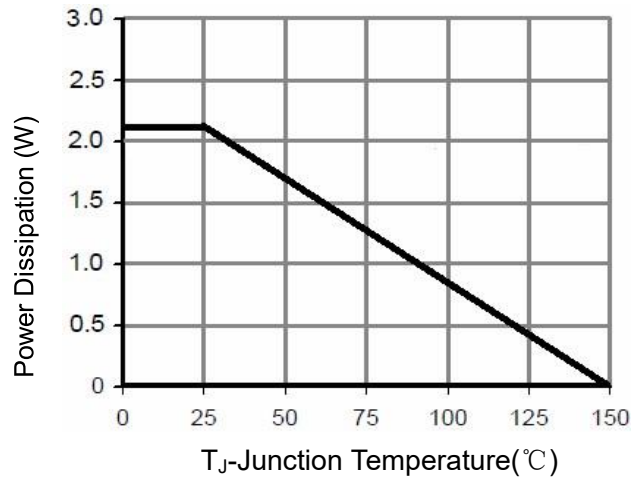


Figure 10 Power De-rating

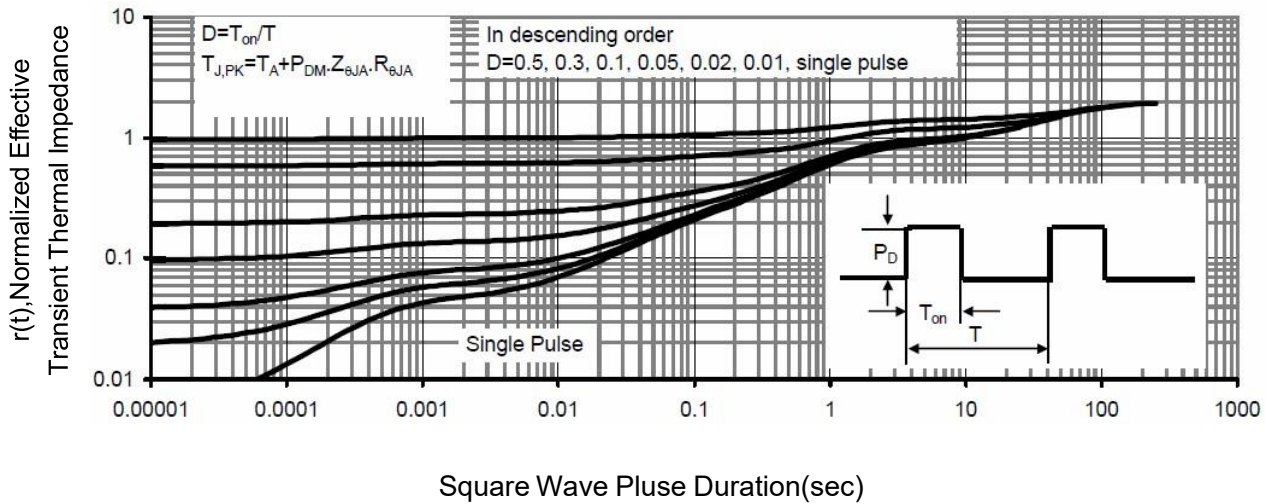
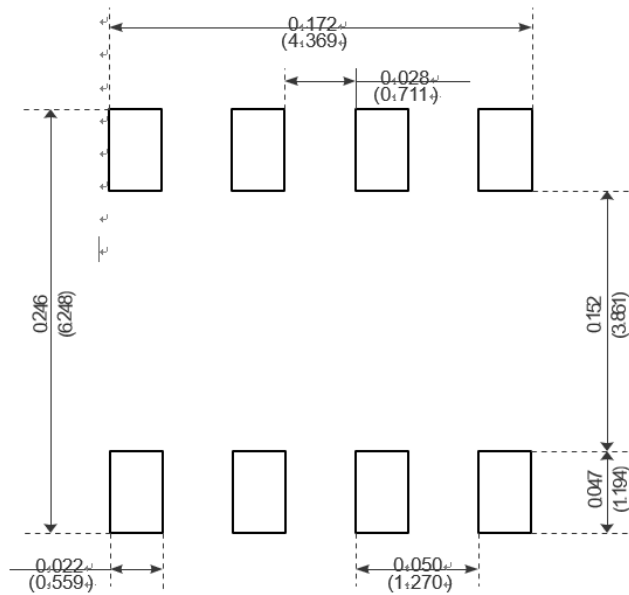
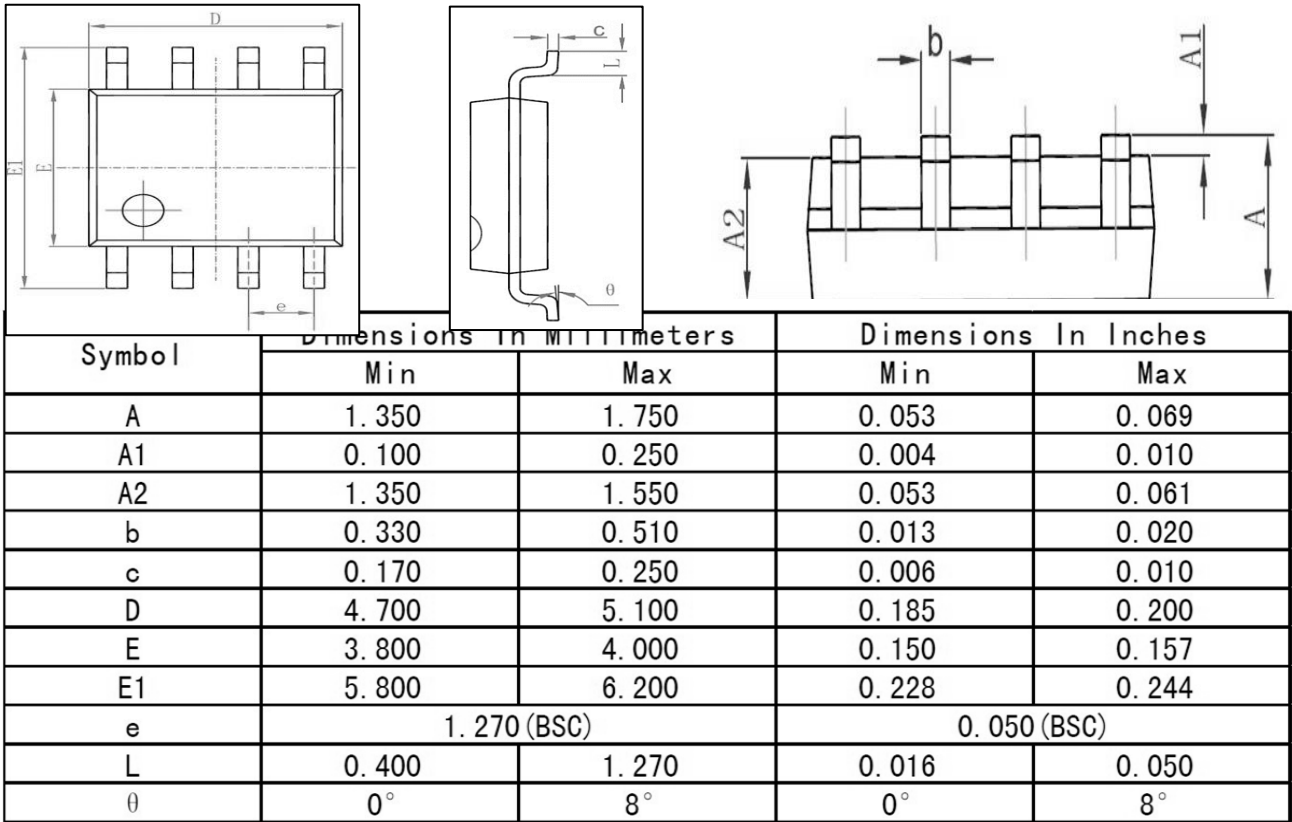


Figure 11 Normalized Maximum Transient Thermal Impedance

Package Mechanical Data-SOP-8



Recommended Minimum Pads