

General Description

The MYW3D02B is the high cell density trench P-CH MOSFET, which provide excellent $R_{DS(ON)}$ and efficiency for most of the small power switching and load switch applications.

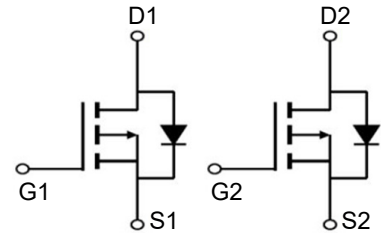
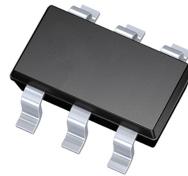


Features

V_{DSS}	-20	V
I_D	-3	A
$R_{DS(ON)}$ (at $V_{GS} = -4.5V$)	70	$m\Omega$
$R_{DS(ON)}$ (at $V_{GS} = -2.5V$)	100	$m\Omega$

Application

- Green Device Available
- Super Low Gate Charge
- Excellent CdV/dt effect decline



Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
MYW3D02B	SOT23-6	MYW3D02B	3000

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

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	± 10	V
Drain Current ^a	I_D	- 3	A
Drain Current –Pulsed ^a	I_{DM}	-8	A
A Power Dissipation ($T_C = 25^\circ C$)	P_D	2.6	W
Power Dissipation – Derate above $25^\circ C$	T_{ST}	0.013	W/ $^\circ C$
Storage Temperature Range	G	-55 ~ +150	$^\circ C$
Operating Junction Temperature Range	T_J	-55 ~ +150	$^\circ C$
Thermal Resistance, Junction-to-Ambient1	$R_{\theta JA}$	49	$^\circ C/W$

Electrical Characteristics ($T_J=25\text{ }^{\circ}\text{C}$, unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V I _D =-250μA	-20	-23	-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-20V, V _{GS} =0V	-	-	-1	μA
Gate-Body Leakage Current	I _{GSS}	V _{GS} =±12V, V _{DS} =0V	-	-	±100	nA
On Characteristics (Note 3)						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250μA	-0.4	-0.7	-1.0	V
Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} =-4.5V, I _D =-4.2A	-	70	90	m
		V _{GS} =-2.5V, I _D =-2.9A	-	100	140	m
Forward Transconductance	g _{FS}	V _{DS} =-15V, I _D =-4.5A	4	7	-	S
Dynamic Characteristics (Note4)						
Input Capacitance	C _{iss}	V _{DS} =-15V, V _{GS} =0V, F=1.0MHz	-	540	-	PF
Output Capacitance	C _{oss}		-	150	-	PF
Reverse Transfer Capacitance	C _{rss}		-	75	-	PF
Switching Characteristics (Note 4)						
Turn-on Delay Time	t _{d(on)}	V _{DD} =-15V, I _D =-1A, V _{GS} =-10V, R _{GEN} =6	-	8	-	nS
Turn-on Rise Time	t _r		-	14	-	nS
Turn-Off Delay Time	t _{d(off)}		-	18	-	nS
Turn-Off Fall Time	t _f		-	10	-	nS
Total Gate Charge	Q _g	V _{DS} =-4.5V, I _D =-4.2A, V _{GS} =-8V	-	12	-	nC
Gate-Source Charge	Q _{gs}		-	2.4	-	nC
Gate-Drain Charge	Q _{gd}		-	3.2	-	nC
Drain-Source Diode Characteristics						
Diode Forward Voltage (Note 3)	V _{SD}	V _{GS} =0V, I _S =-4.2A	-	-	-1.2	V

Notes:

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

Switching Time Test Circuit and Waveforms

Typical Electrical and Thermal Characteristics

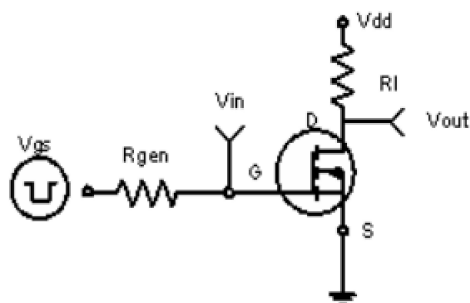


Figure 1: Switching Test Circuit

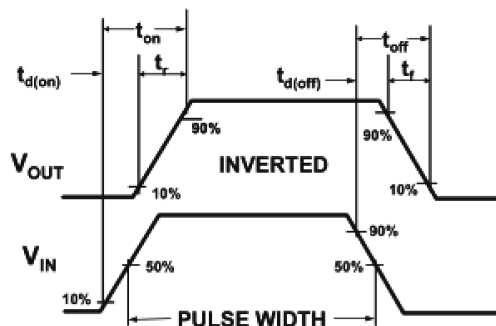


Figure 2: Switching Waveforms

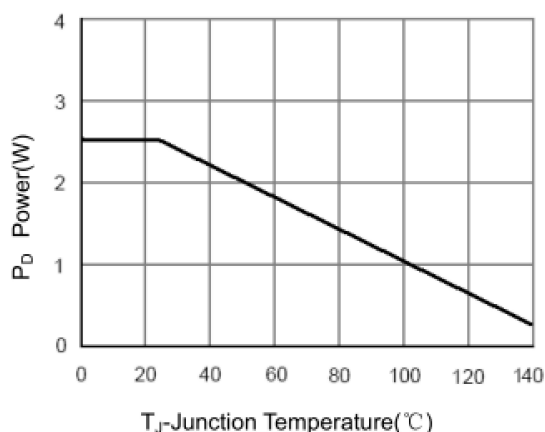


Figure 3 Power Dissipation

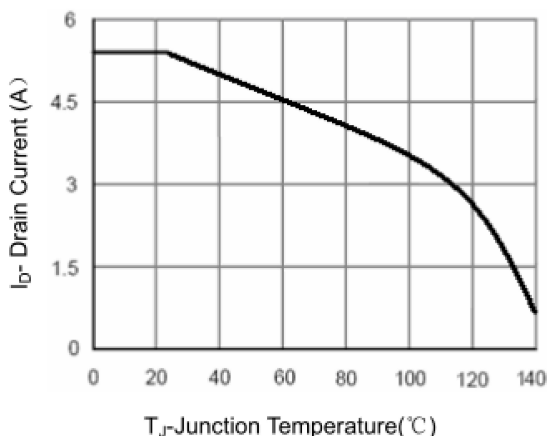


Figure 4 Drain Current

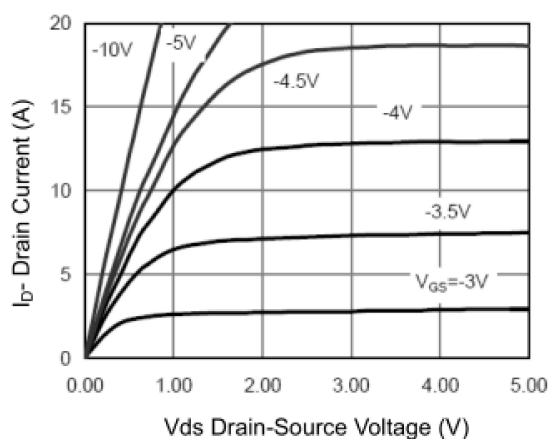


Figure 5 Output Characteristics

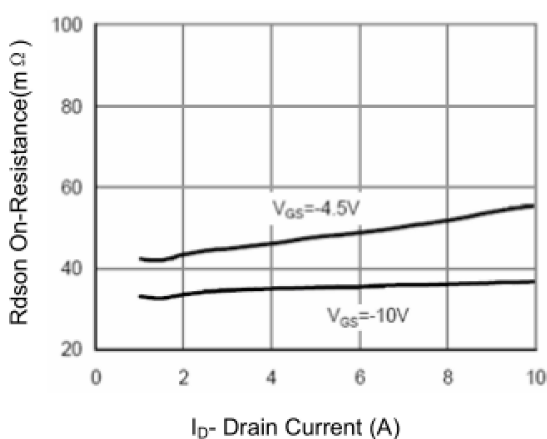


Figure 6 Drain-Source On-Resistance

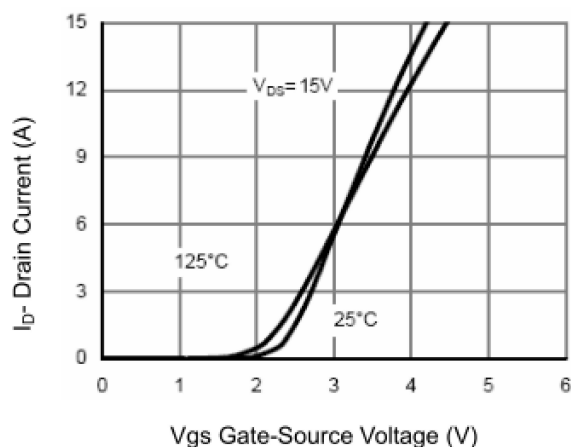


Figure 7 Transfer Characteristics

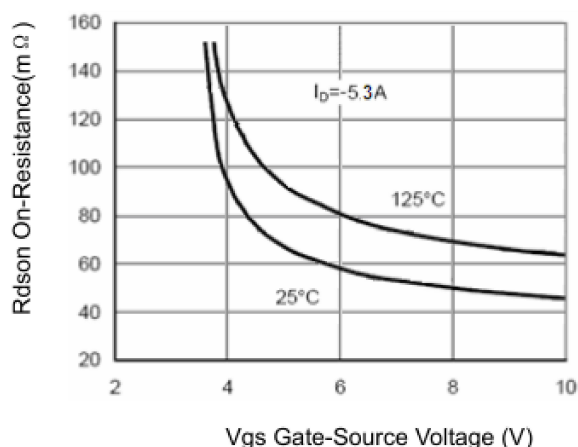


Figure 9 Rdson vs Vgs

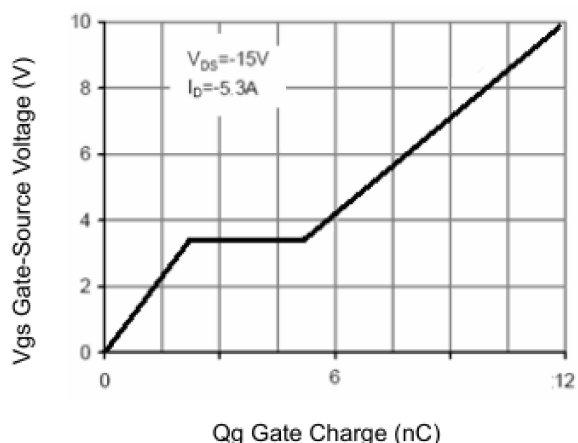


Figure 11 Gate Charge

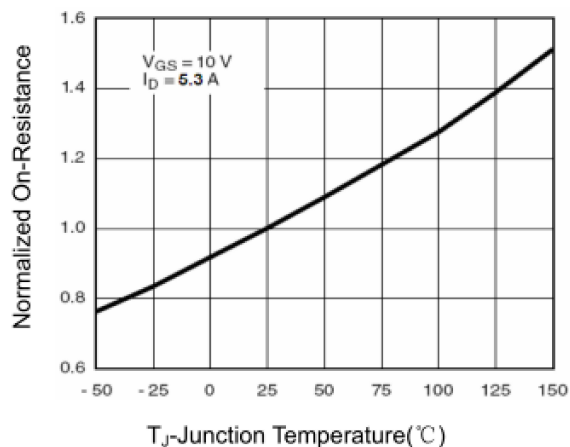


Figure 8 Drain-Source On-Resistance

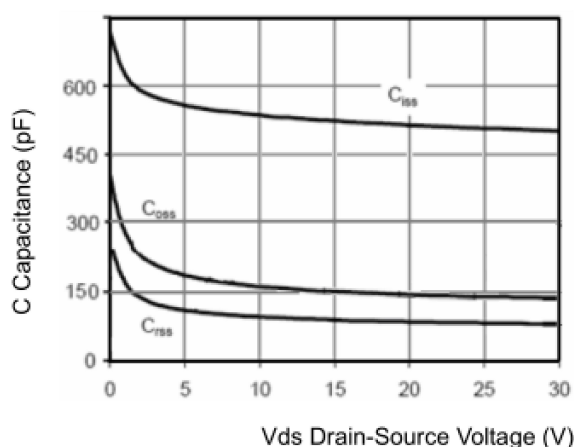


Figure 10 Capacitance vs Vds

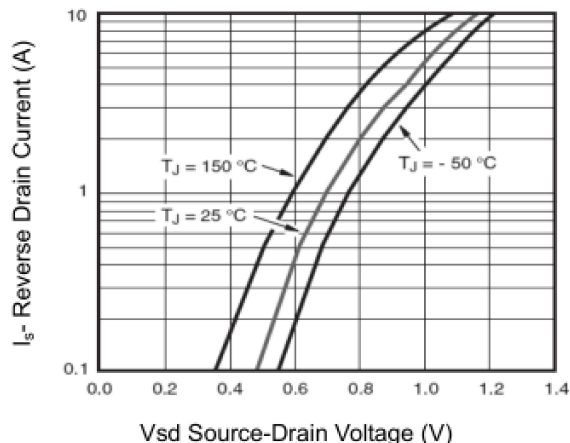


Figure 12 Source- Drain Diode Forward

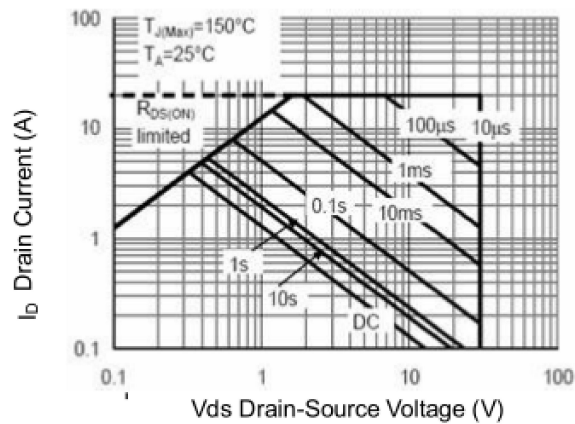


Figure 13 Safe Operation Area

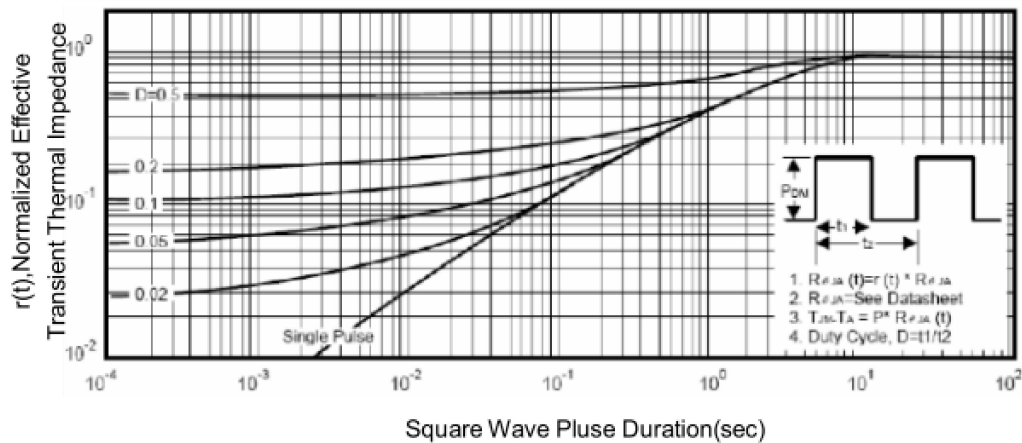


Figure 14 Normalized Maximum Transient Thermal Impedance

Package Mechanical Data-SOT-23-6

