

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
20V	170mΩ@4.5V	0.75A
	230mΩ@2.5V	
	330mΩ@1.8V	

Feature

- Trench Technology Power MOSFET
- Low $R_{DS(on)}$
- Low Gate Charge
- ESD Protected

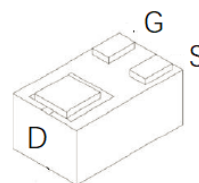
Application

- Load Switch
- DC/DC Converter

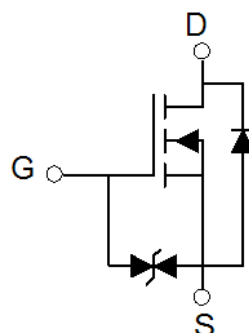
MARKING:



WBFBP-03E



Schematic diagram



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

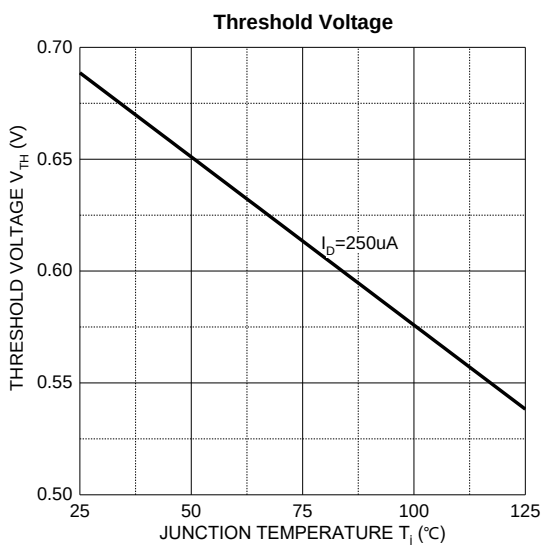
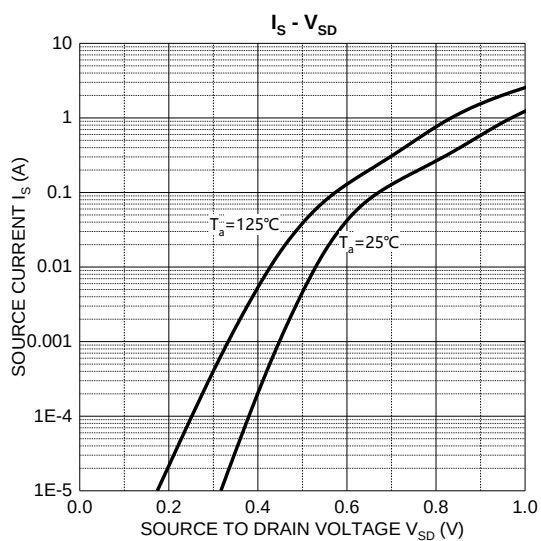
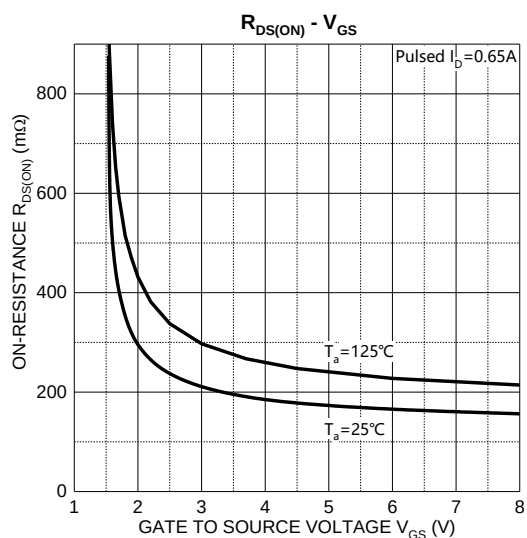
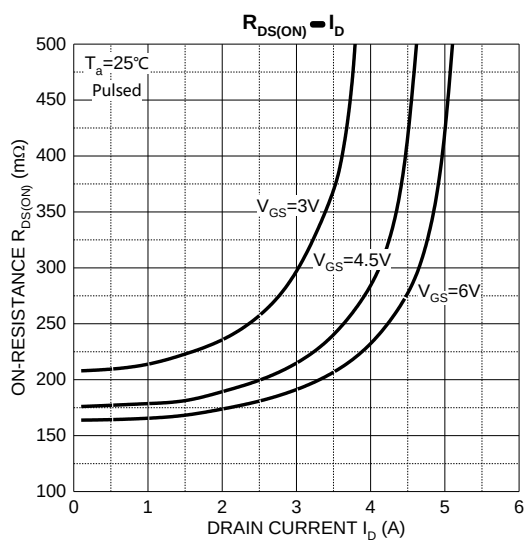
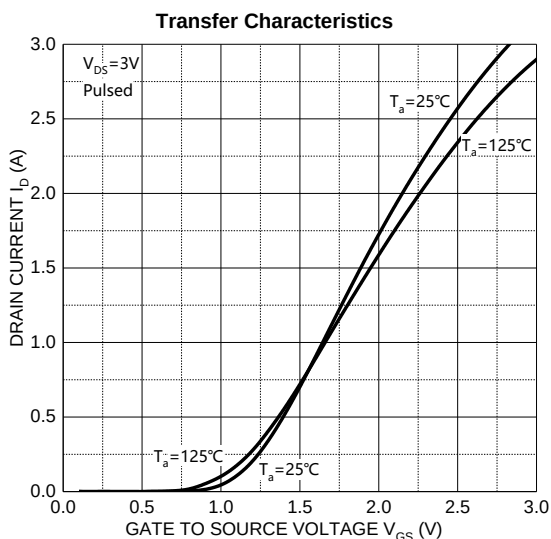
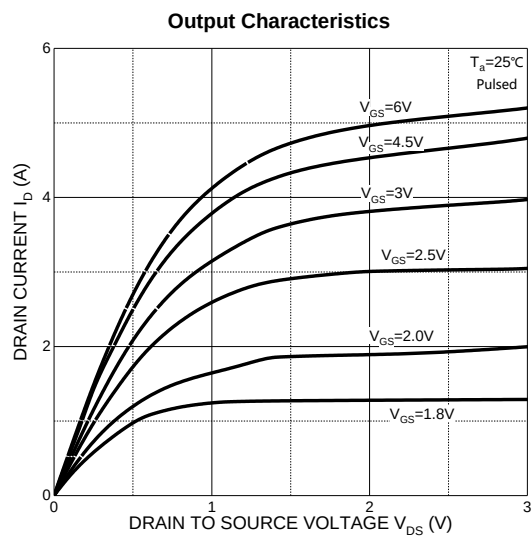
Parameter	Symbol	Value	Unit
Drain - Source Voltage	V_{DS}	20	V
Gate - Source Voltage	V_{GS}	± 12	V
Continuous Drain Current ^{1,5}	I_D	0.75	A
Pulsed Drain Current ²	I_{DM}	3.0	A
Power Dissipation ^{4,5}	P_D	0.1	W
Thermal Resistance from Junction to Ambient ⁵	$R_{\theta JA}$	1250	$^\circ\text{C/W}$
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55~ +150	$^\circ\text{C}$

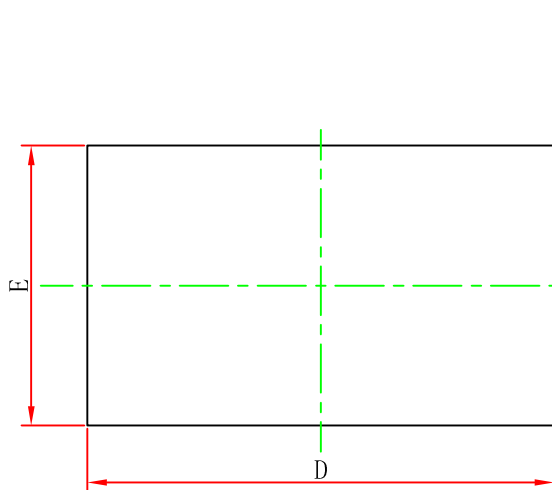
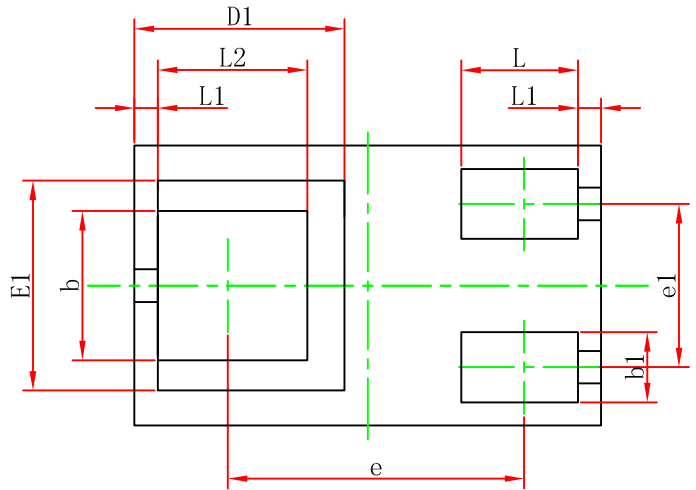
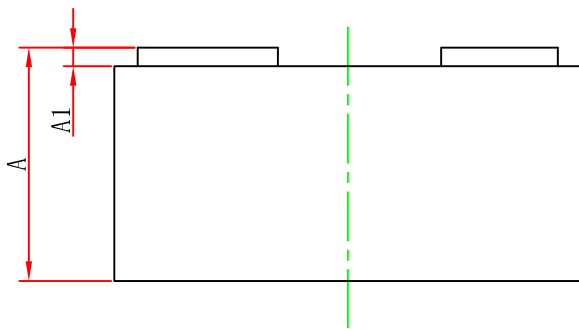
MOSFET ELECTRICAL CHARACTERISTICS ($T_J = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Off Characteristics						
Drain - Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250μA	20			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 20V, V _{GS} = 0V			1.0	μA
Gate - Body Leakage Current	I _{GSS}	V _{GS} = ±10V			±10	μA
On Characteristics ³						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	0.4	0.7	1.0	V
Drain-source On-resistance	R _{DS(on)}	V _{GS} = 4.5V, I _D = 650mA		170	380	mΩ
		V _{GS} = 2.5V, I _D = 550mA		230	450	
		V _{GS} = 1.8V, I _D =450mA		330	590	
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} = 10V, f = 1MHz		55.6		pF
Output Capacitance	C _{oss}			14.1		
Reverse Transfer Capacitance	C _{rss}			10.3		
Switching Characteristics						
Total Gate Charge	Q _g	V _{DS} = 10V, V _{GS} = 4.5V, I _D =0.65A		0.78		nC
Gate-source Charge	Q _{gs}			0.23		
Gate-drain Charge	Q _{gd}			0.01		
Turn-on Delay Time	t _{d(on)}	V _{DS} =10V,I _D =500mA, V _{GS} =4.5V,R _G =10Ω		6.7		ns
Turn-on Rise Time	t _r			4.8		
Turn-off Delay Ttime	t _{d(off)}			17.3		
Turn-off Fall Time	t _f			7.4		
Source - Drain Diode Characteristics						
Diode Forward Voltage ³	V _{SD}	V _{GS} = 0V, I _S = 0.15A		0.65	1.2	V

Notes :

- 1.The maximum current rating is limited by package.
- 2.Pulse Test : Pulse Width $\leq 10\mu s$, duty cycle $\leq 1\%$.
- 3.Pulse Test : Pulse Width $\leq 300\mu s$, duty cycle $\leq 2\%$.
- 4.The power dissipation P_D is limited by $T_{J(MAX)} = 150^\circ\text{C}$.
- 5.Device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with $T_A = 25^\circ\text{C}$.

Typical Characteristics


WBFBP-03E Package Information

TOP VIEW

BOTTOM VIEW

SIDE VIEW

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.450	0.550	0.018	0.022
A1	0.010	0.100	0.000	0.004
D	0.950	1.050	0.037	0.041
E	0.550	0.650	0.022	0.026
D1	0.450REF.		0.018REF.	
E1	0.450REF.		0.018REF.	
b	0.270	0.370	0.011	0.015
b1	0.100	0.200	0.004	0.008
e	0.635REF.		0.025REF.	
e1	0.300	0.400	0.012	0.016
L	0.200	0.300	0.008	0.012
L1	0.050REF.		0.002REF.	
L2	0.270	0.370	0.011	0.015