

PW34KF1-3

20V N-Channel MOSFET

0.75A 20V; $R_{DS(ON)typ}=190m\Omega@4.5V$, $R_{DS(ON)typ}=250m\Omega@2.5V$,
 $R_{DS(ON)typ}=350m\Omega@1.8V$

FEATURE

- Lead Free Product is Acquired
- Surface Mount Package
- N-Channel Switch with Low $R_{DS(on)}$
- Operated at Low Logic Level Gate Drive

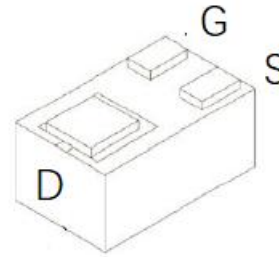
Application

- Load/Power Switching
- Interfacing Switching
- Battery Management for Ultra Small Portable Electronics
- Logic Level Shift

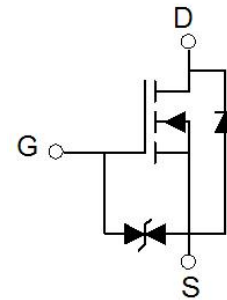
MARKING:



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⁾ | I_D | 0.75 | A |
| Pulsed Drain Current($t_p=10\mu\text{s}$) | I_{DM} | 1.8 | A |
| Power Dissipation ⁽¹⁾ | P_D | 100 | mW |
| Thermal Resistance from Junction to Ambient ⁽¹⁾ | $R_{\theta JA}$ | 1250 | $^\circ\text{C/W}$ |
| Junction Temperature | T_J | 150 | $^\circ\text{C}$ |
| Storage Temperature | T_{STG} | -55~+150 | $^\circ\text{C}$ |
| Lead Temperature for Soldering Purposes(1/8" from case for 10s) | T_L | 260 | $^\circ\text{C}$ |

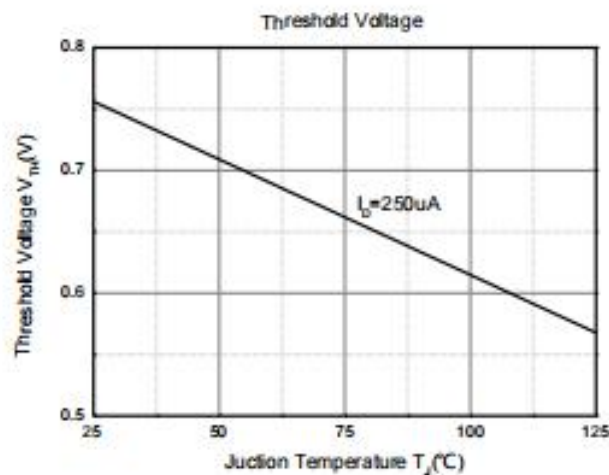
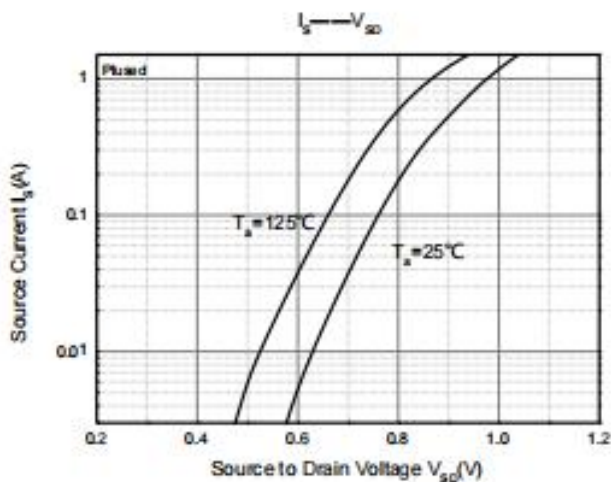
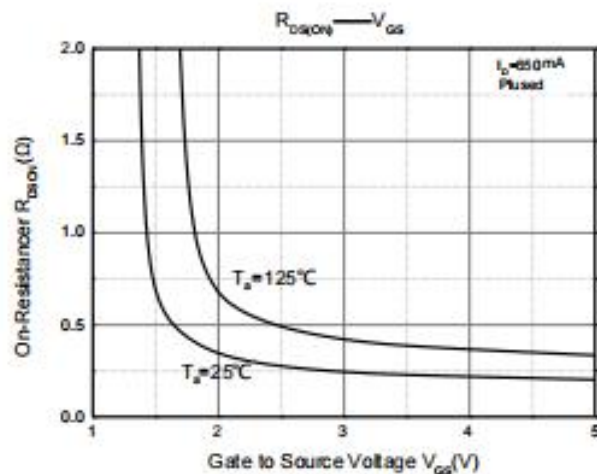
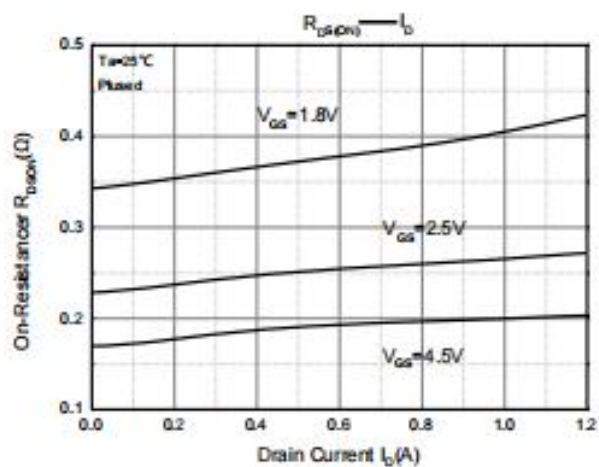
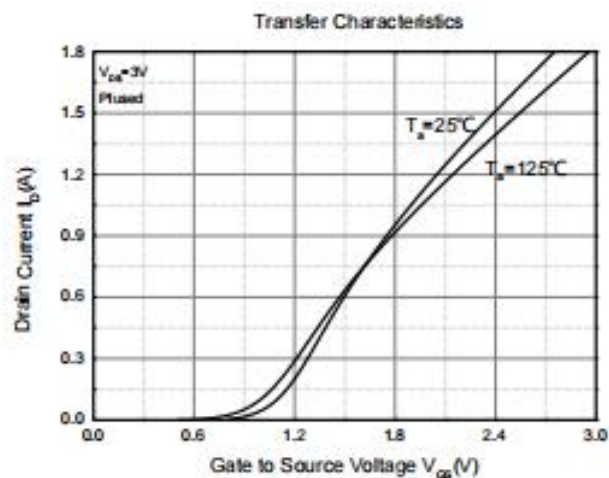
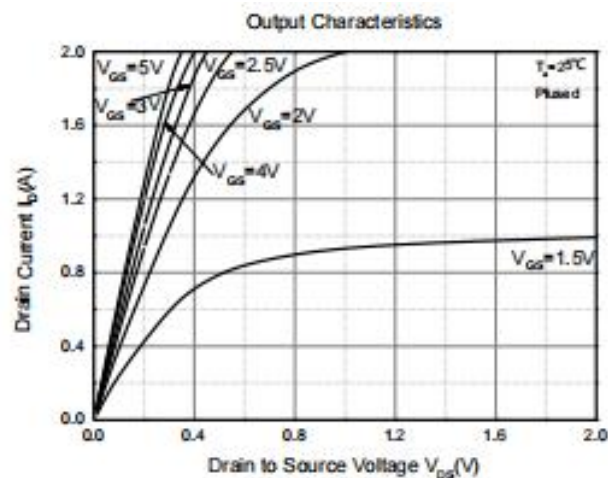
MOSFET ELECTRICAL CHARACTERISTICS(T_a=25°C unless otherwise noted)

| Parameter | Symbol | Test Condition | Min | Type | Max | Unit |
|--|----------------------|--|------|------|-----|------|
| STATIC 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 | μA |
| Gate-body leakage current | I _{GSS} | V _{GS} = ±10V, V _{DS} = 0V | | | ±20 | μA |
| Gate threshold voltage ⁽²⁾ | V _{GS(th)} | V _{DS} = V _{GS} , I _D = 250μA | 0.35 | 0.75 | 1.1 | V |
| Drain-source on-resistance ⁽²⁾ | R _{DS(on)} | V _{GS} = 4.5V, I _D = 150mA | | 190 | 250 | mΩ |
| | | V _{GS} = 2.5V, I _D = 150mA | | 250 | 330 | |
| | | V _{GS} = 1.8V, I _D = 150mA | | 350 | 525 | |
| Forward tranconductance | g _{FS} | V _{DS} = 10V, I _D = 150mA | 150 | | | mS |
| DYNAMIC CHARACTERISTICS⁽⁴⁾ | | | | | | |
| Input Capacitance | C _{iss} | V _{DS} = 16V, V _{GS} = 0V, f = 1MHz | | 57 | 120 | pF |
| Output Capacitance | C _{oss} | | | 13 | 20 | |
| Reverse Transfer Capacitance | C _{rss} | | | 9 | 15 | |
| SWITCHING CHARACTERISTICS⁽⁴⁾ | | | | | | |
| Turn-on delay time ⁽³⁾ | t _{d(on)} | V _{DS} = 10V, I _D = 500mA, V _{GS} = 4.5V, R _G = 10Ω | | 6.7 | | ns |
| Turn-on rise time ⁽³⁾ | t _r | | | 4.8 | | |
| Turn-off delay time ⁽³⁾ | t _{d(off)} | | | 17.3 | | |
| Turn-off fall time ⁽³⁾ | t _f | | | 7.4 | | |
| SOURCE-DRAIN DIODE CHARACTERISTICS | | | | | | |
| Diode Forward voltage ⁽³⁾ | V _{DS} | I _S = 150mA, V _{GS} = 0V | | | 1.2 | V |

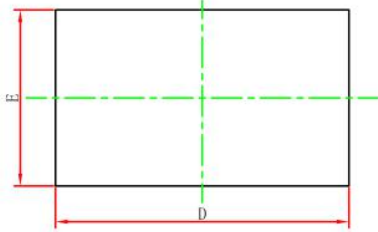
Notes:

1. Surface mounted on FR4 board using the minimum recommended pad size.
2. Pulse Test : Pulse Width=300μs, Duty Cycle=2%.
3. Switching characteristics are independent of operating junction temperatures.
4. Guaranteed by design, not subject to producing.

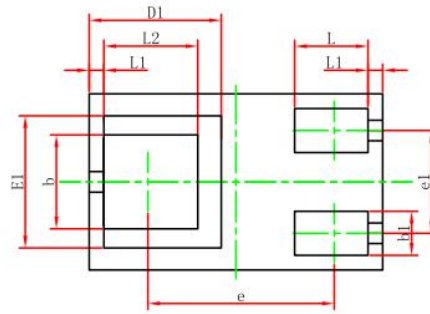
Typical Electrical and Thermal Characteristics



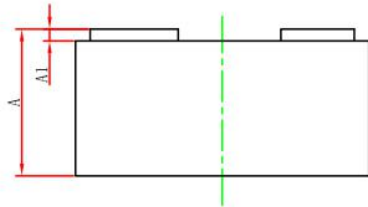
WBFBP-03E Package Information



TOP VIEW



BOTTOM VIEW

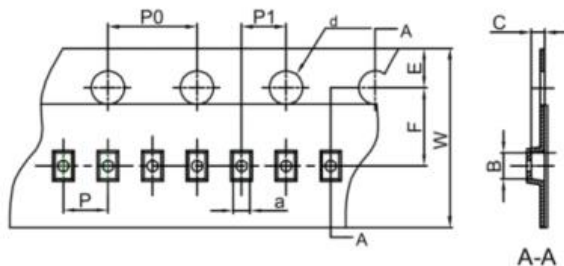


SIDE VIEW

| 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 |

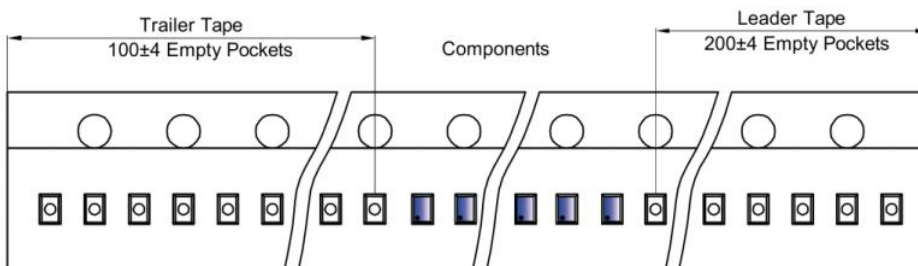
WBFBP-03E Tape and Reel

WBFBP-03E(1.0*0.6*0.5) Embossed Carrier Tape

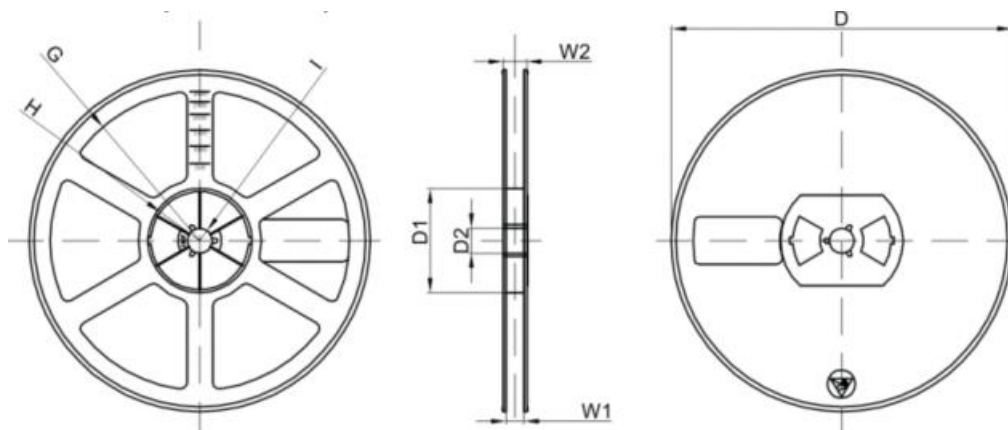


| Dimensions are in millimeter | | | | | | | | | | |
|------------------------------|------|------|------|-------|------|------|------|------|------|------|
| Pkg type | A | B | C | d | E | F | P0 | P | P1 | W |
| WBFBP-03E (1.0*0.6*0.5) | 0.66 | 1.15 | 0.66 | Ø1.50 | 1.75 | 3.50 | 4.00 | 2.00 | 2.00 | 8.00 |

WBFBP-03E(1.0*0.6*0.5) Tape Leader and Trailer



WBFBP-03E(1.0*0.6*0.5) Reel



| Dimensions are in millimeter | | | | | | | |
|------------------------------|---------|-------|-------|--------|--------|-------|------|
| Reel Option | D | D1 | D2 | G | H | I | W1 |
| 7" Dia | Ø178.00 | 54.40 | 13.00 | R78.00 | R25.60 | R6.50 | 9.50 |

| REEL | Reel Size | Box | Box Size(mm) | Carton | Carton Size(mm) | G.W.(kg) |
|-----------|-----------|-------------|--------------|-------------|-----------------|----------|
| 10000 pcs | 7 inch | 100,000 pcs | 203×203×195 | 400,000 pcs | 438×438×220 | |