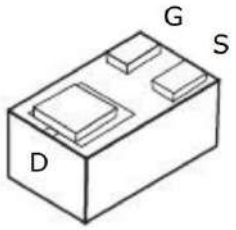
N- Channel Enhancement Mode Power MOSFET

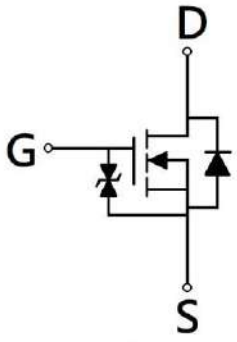
Features:

- Low On Resistance
- Low Gate Charge
- Fast Switching Characteristic
- ESD protected gate, typical 4kV (HBM)

WBFBP-03E/SOT883B (DFN1006B-3)



BV_{DSS}	30V
I_D@V_{GS}=4.5V, T_A=25°C	0.86A
$R_{DS(ON)}$ typ. @ V_{GS}=4.5V, I_D=0.2A	0.5Ω
$R_{DS(ON)}$ typ. @ V_{GS}=2.5V, I_D=0.2A	0.6Ω
$R_{DS(ON)}$ typ. @ V_{GS}=1.8V, I_D=10mA	0.9Ω



G : Gate S : Source D : Drain

Ordering Information

Device	Package	Shipping
KWA500N03K	WBFBP-03E/SOT883B (DFN1006B-3) (Pb-free lead plating and halogen-free package)	10000 pcs / Tape & Reel

Absolute Maximum Ratings (T_A=25°C)

Parameter		Symbol	Limits	Unit
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Voltage		V_{GS}	±8	
Continuous Drain Current @ V_{GS}=4.5V, T_A=25°C		I_D	0.86	A
Continuous Drain Current @ V_{GS}=4.5V, T_A=70°C			0.69	
Pulsed Drain Current	*a	I_{DM}	2.2	
Continuous Body Diode Forward Current @ T_A=25°C		I_S	0.75	
Pulsed Body Diode Forward Current		I_{SM}	2.2	
ESD susceptibility	*b	V_{ESD}	4000	V
Total Power Dissipation	T_A=25°C	P_D	0.9	W
	T_A=70°C		0.6	
Operating Junction and Storage Temperature Range		T_J, T_{stg}	-55~+150	°C

Thermal Data

Parameter	Symbol	Steady State	Unit
Thermal Resistance, Junction-to-ambient	$R_{\theta JA}$	136	°C/W

Note:
*a. Repetitive rating, pulse width limited by junction temperature TJ(MAX)=150℃. Ratings are based on low frequency and low duty cycles to keep initial TJ=25℃.
*b. Human body model, 1.5kΩin series with 100pF.

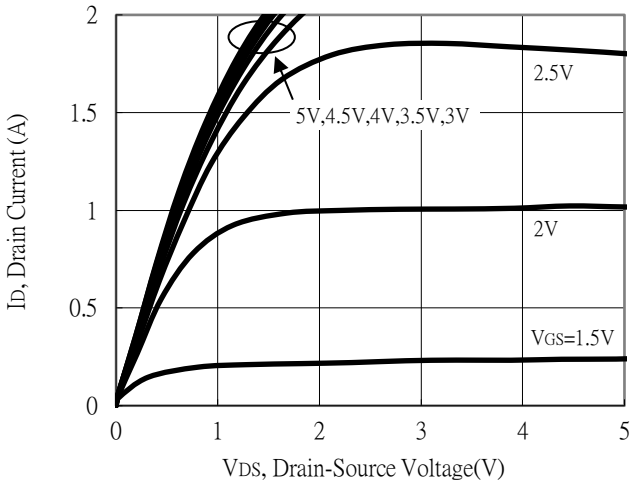
Electrical Characteristics (T_A=25°C, unless otherwise specified)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Static					
BV_{DSS}	30	-	-	V	V_{GS}=0V, I_D=250μA
$V_{GS(th)}$	0.4	-	1.2		V_{DS}=V_{GS}, I_D=250μA
G_{FS}	-	0.8	-	S	V_{DS}=5V, I_D=0.2A
I_{GSS}	-	-	±10	μA	V_{GS}=±8V, V_{DS}=0V
I_{DSS}	-	-	1		V_{DS}=24V, V_{GS}=0V
$R_{DS(ON)}$	-	0.5	0.7	Ω	V_{GS}=4.5V, I_D=0.2A
	-	0.6	0.9		V_{GS}=2.5V, I_D=0.2A
	-	0.9	2		V_{GS}=1.8V, I_D=10mA
Dynamic					
Ciss	-	31	-	pF	V_{DS}=15V, V_{GS}=0V, f=1MHz
Coss	-	11	-		
Crss	-	8	-		
Qg *1, 2	-	0.9	-	nC	V_{DS}=20V, I_D=0.2A, V_{GS}=4.5V
Qgs *1, 2	-	0.2	-		
Qgd *1, 2	-	0.2	-		
$t_{d(ON)}$ *1, 2	-	5.3	-	ns	V_{DS}=15V, I_D=0.2A, V_{GS}=4.5V, R_{GS}=6Ω
tr *1, 2	-	16	-		
$t_{d(OFF)}$ *1, 2	-	20	-		
t_f *1, 2	-	18	-		
Source-Drain Diode					
V_{SD} *1	-	0.85	1.2	V	I_S=0.2A, V_{GS}=0V
trr	-	4.7	-	ns	I_F=0.5A, dI_F/dt=100A/μs
Qrr	-	1.2	-	nC	

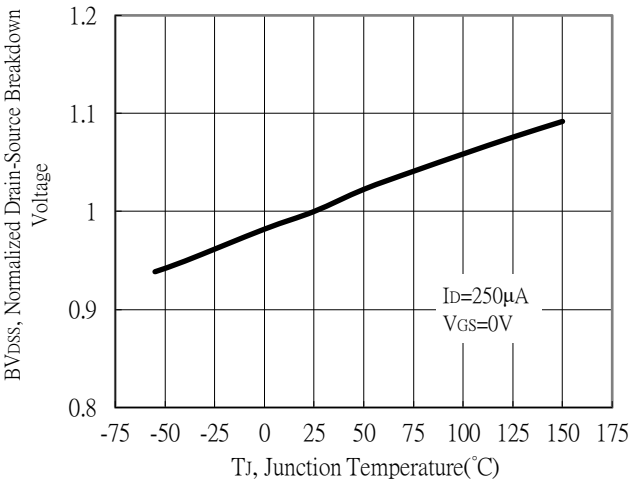
Note:
*1. Pulse Test : Pulse Width ≤300μs, Duty Cycle≤2%
*2. Independent of operating temperature

Typical Characteristics

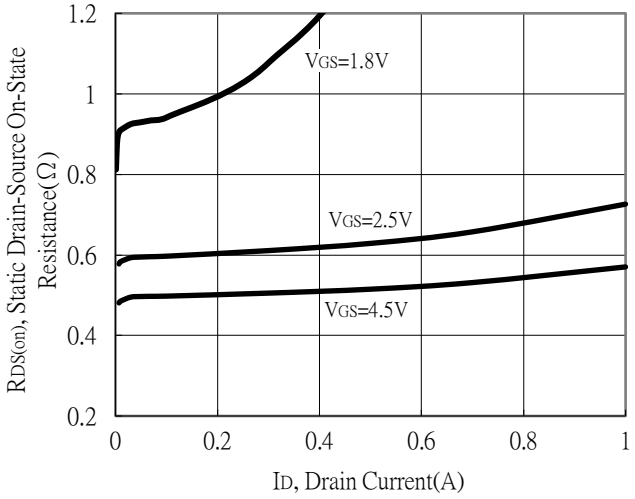
Typical Output Characteristics



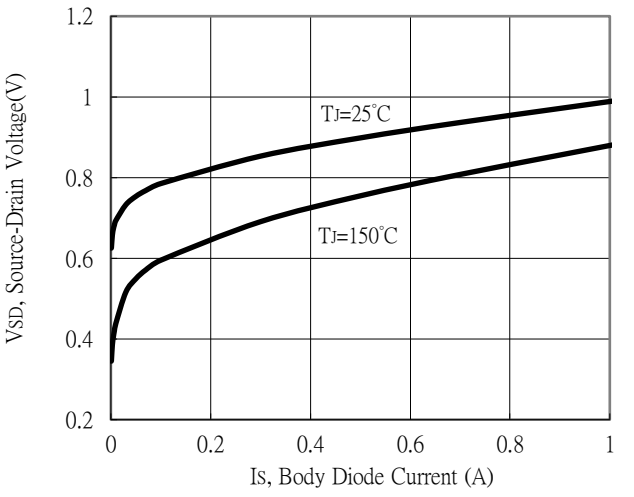
Breakdown Voltage vs Ambient Temperature



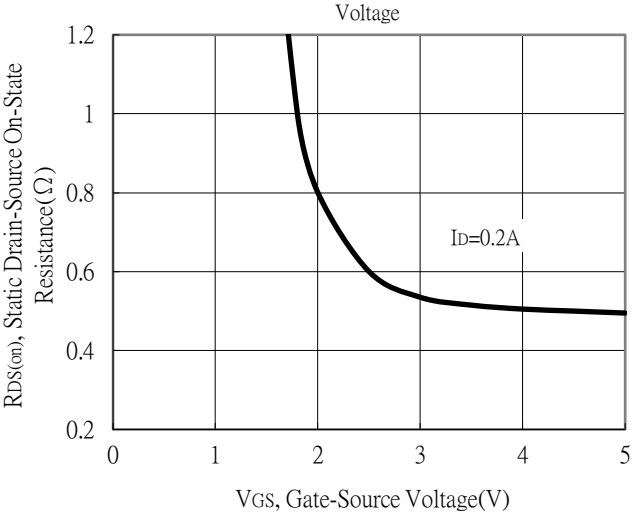
Static Drain-Source On-State resistance vs Drain Current



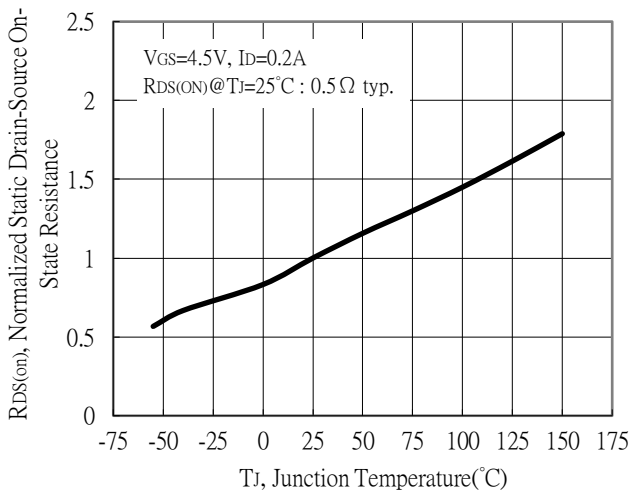
Body Diode Current vs Source-Drain Voltage



Static Drain-Source On-State Resistance vs Gate-Source Voltage

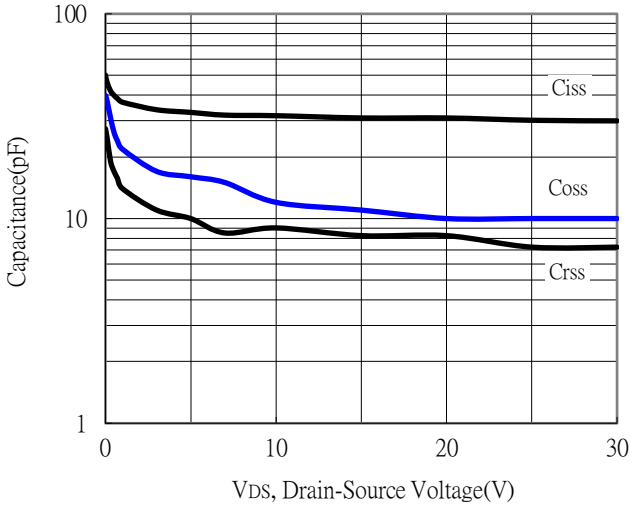


Drain-Source On-State Resistance vs Junction Temperature

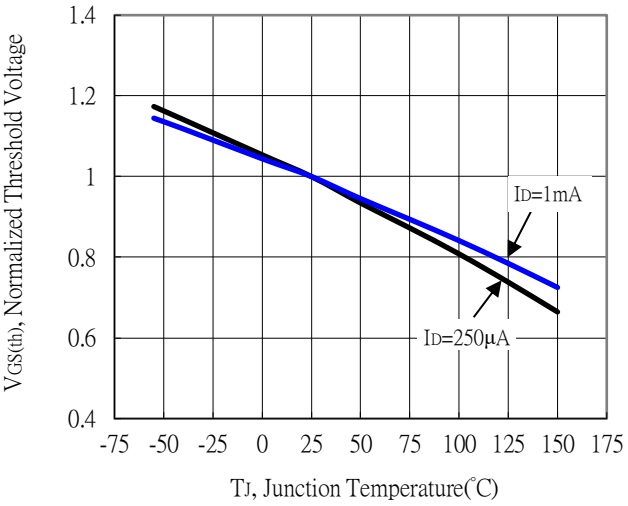


Typical Characteristics (Cont.)

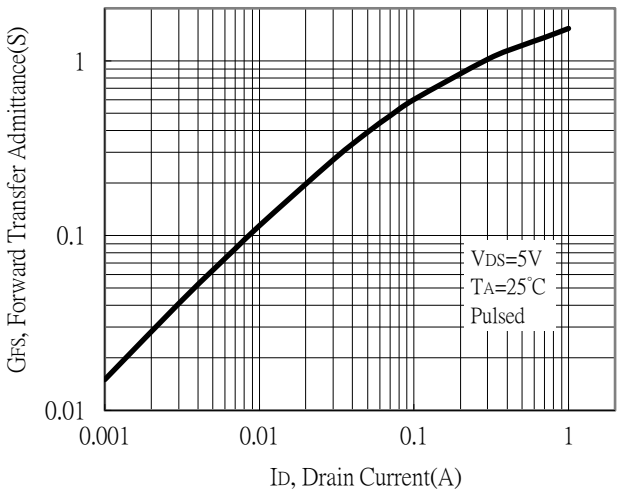
Capacitance vs Drain-to-Source Voltage



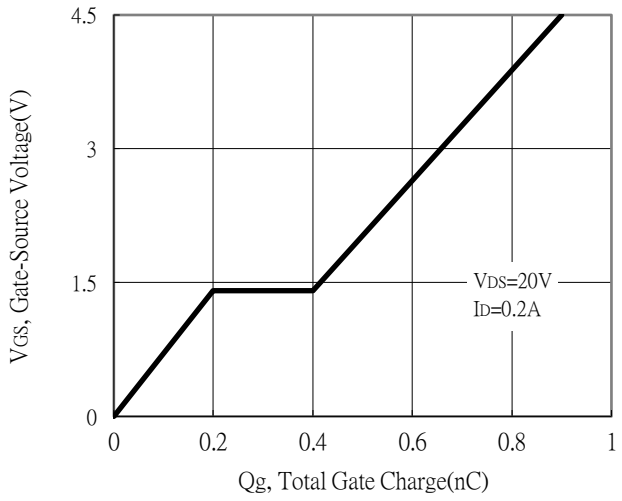
Threshold Voltage vs Junction Temperature



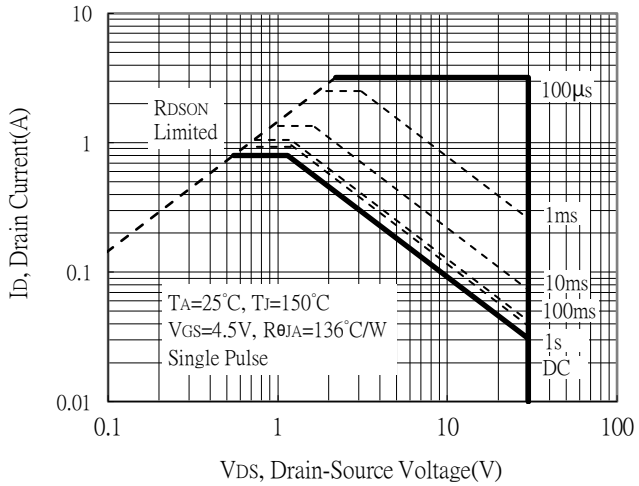
Forward Transfer Admittance vs Drain Current



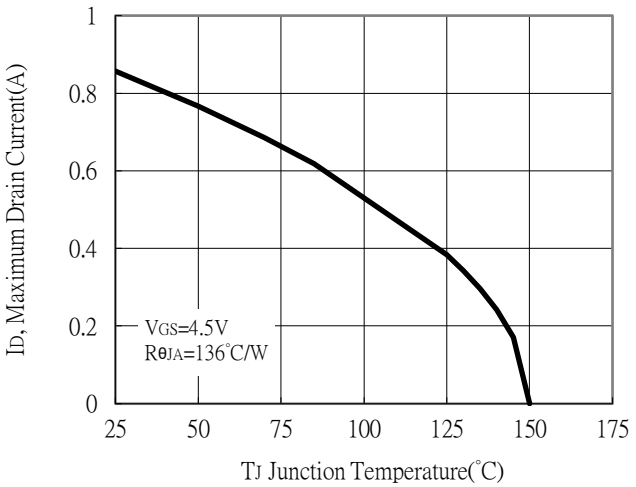
Gate Charge Characteristics



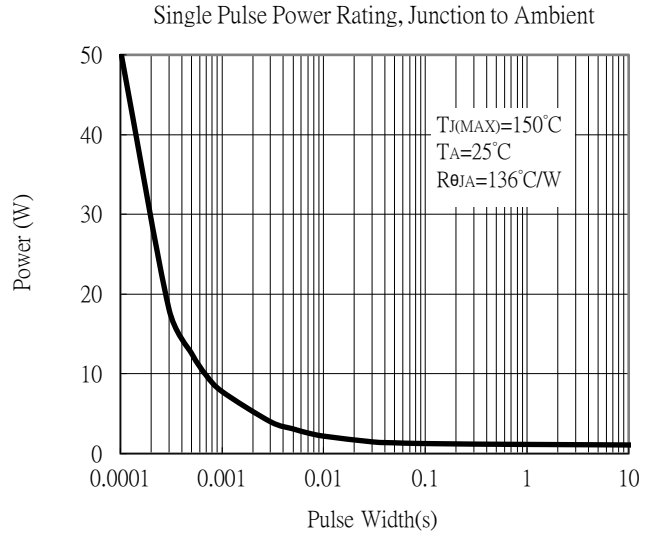
Maximum Safe Operating Area

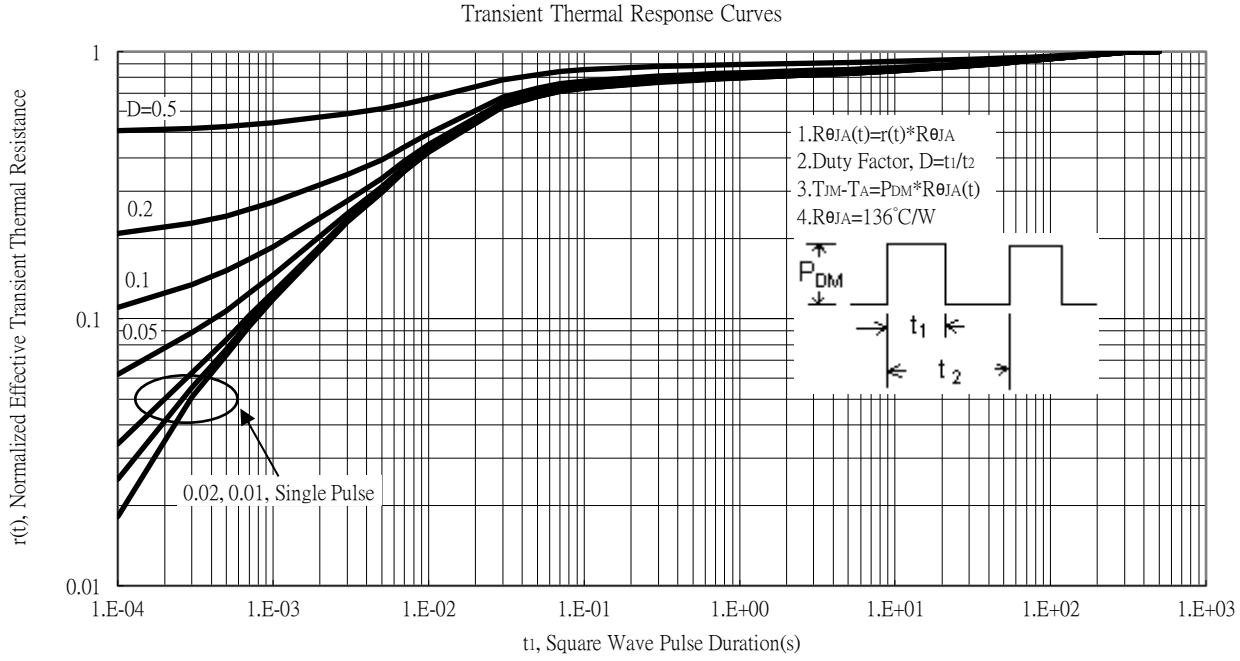


Maximum Drain Current vs Junction Temperature

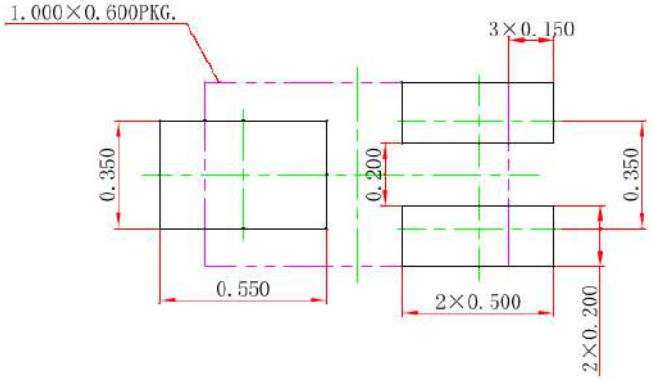


Typical Characteristics (Cont.)



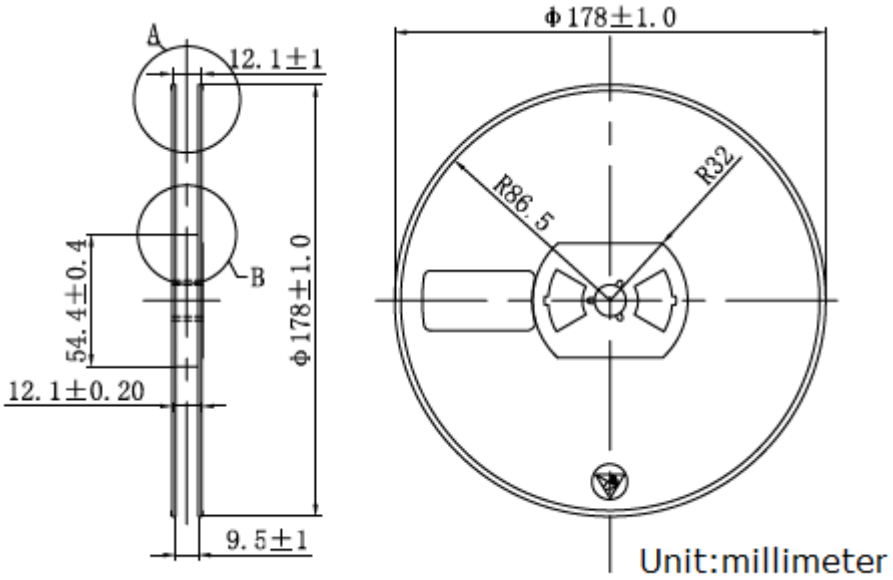


Recommended Soldering Footprint

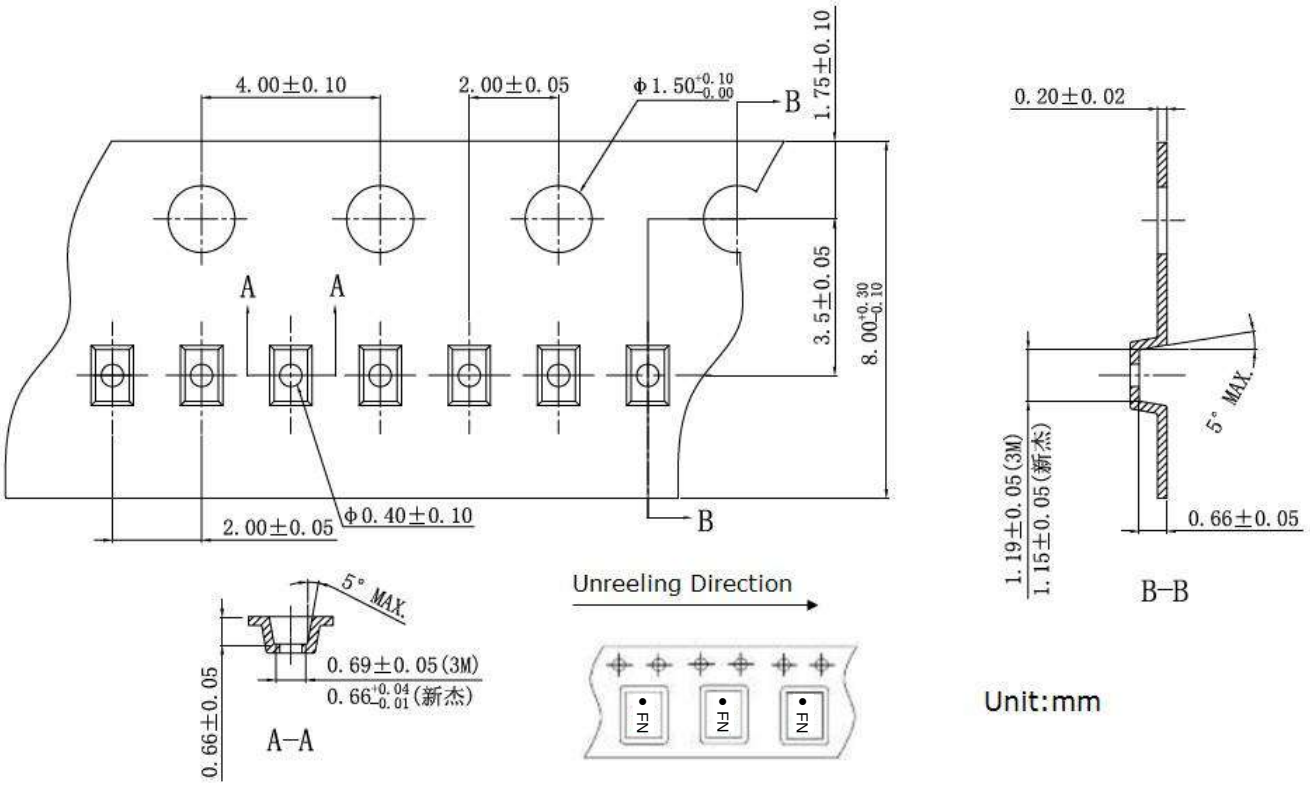


Note:
1.Controlling dimension:in millimeters.
2.General tolerance:± 0.050mm.
3.The pad layout is for reference purposes only.

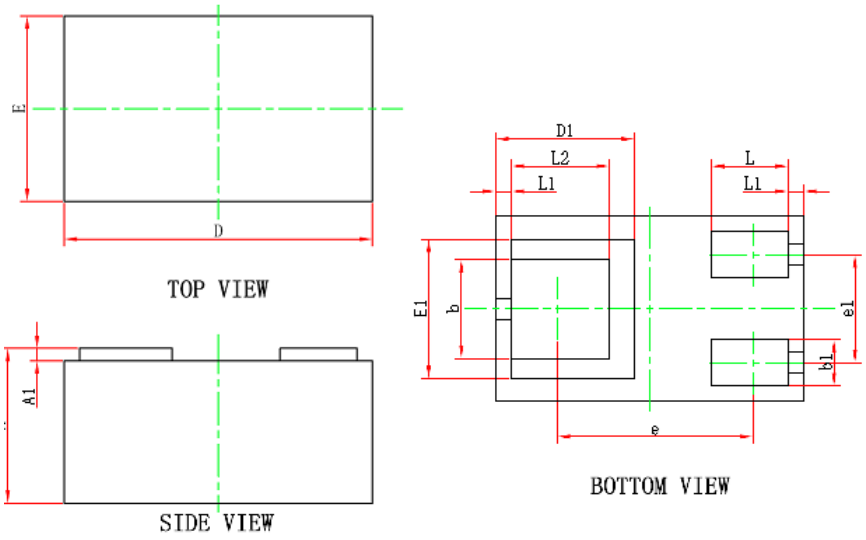
Reel Dimension



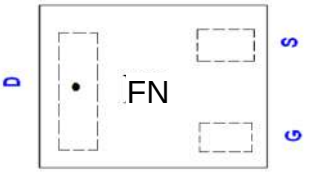
Carrier Tape Dimension



WBFBP-03E/SOT883B (DFN1006B-3) Dimension



Marking:



3-Lead WBFBP-03E Plastic
Surface Mounted Package
Style: Pin 1.Gate 2.Source 3.Drain

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