





<b>Product Series :</b> GTX	<b>Brand :</b> GOTREND ( Made in China )
<b>File Version :</b> GTX-EFD20P-S12C1-V1R2	<b>Editor :</b> Jerry Chen
<b>Established Date :</b> 2021.12.07	<b>Description :</b> SMD Transformer_Buck_M12
<b>Latest Edit Date :</b> 2022.04.13	<b>Product Type :</b> <input type="checkbox"/> Standard <input checked="" type="checkbox"/> Customize

## REMINDERS

- ◆ Product information in this catalog is subject to change without notice, and is for reference only. Therefore, please contact GOTREND Technology to check for the latest information before practical application or usage of the products.
- ◆ This catalog contains only typical specifications, please contact GOTREND Technology for further details if you can not find special components or information you need in this catalogue. Please also approve our product specifications or transact the approval sheet for product specifications before ordering.
- ◆ This catalogue only applies to products purchased through GOTREND Technology or its official agencies. This catalogue does not apply to products that are purchased through other third parties.
- ◆ Please read Attention and CAUTION note (for storage, operating, rating, soldering, mounting and handling) in this catalog to ensure product proper usage.
- ◆ GOTREND Technology is not responsible for issues that occur related to the intellectual property rights or other rights of our company or a third party when you use a product listed in this catalog. GOTREND Technology do not grant license of these rights.
- ◆ Information and data provided in the brochure can and do vary in different applications, and actual performance may vary over time.
- ◆ "Delivery Specification" illustrating precautions for the specifications and safety of each product listed in this catalog is available and we strongly recommend to provide these delivery specifications with customers that use these products.
- ◆ For exporting of product in this catalog, please take note it may be a restricted item according to the "Foreign Exchange and Foreign Trade Control Law". In such cases, it is necessary to acquire export permission in accordance to this law.
- ◆ Any reproduction or extraction of the contents in this catalog is prohibited without prior permission from GOTREND Technology.
- ◆ Products listed in this catalog are intended for general electronic device usage under normal operation and use condition including telecommunication equipment, home appliances, sports equipment AV equipment, industrial machine, office equipment etc. Please take note that our products are not designed, intended or authorized for use in below mentioned applications unless explicitly agreed in writing between the parties to avoid product failure that could result in situation where personal injury or death could occur.
  - (1) Aerospace/Aviation equipment
  - (2) Atomic energy-related equipment
  - (3) Disaster prevention/crime prevention equipment
  - (4) Electric heating apparatus, burning equipment
  - (5) Medical equipment
  - (6) Military equipment
  - (7) Power-generation control equipment
  - (8) Public information-processing equipment
  - (9) Safety equipment
  - (10) Seabed equipment
  - (11) Transportation control equipment
  - (12) Transportation equipment (cars, electric trains, ships, etc.)
  - (13) Other applications that are not considered general-purpose applications
- ◆ Our manufacturing sites fully compliance with requirement regarding the quality management system in the automotive industry under the IATF 16949 standard. GOTREND Technology respect individual agreements with reference to customer requirements and customer specific requirements (CSR). We will like to emphasize that only requirements mutually agreed upon will in implemented in our Quality Management System taking into consideration that IATF 16949 may appear to support the acceptance of unilateral requirements. We will only legally bind to this individually agreed upon agreement under the IATF 16949 standard.
- ◆ The product itself is a powder metallurgy product, so the structure is relatively fragile, and it should not be used for products that are easy to fall. In addition, when this product is assembled, it should avoid collision with the tool or mechanism shell. 
- ◆ It is not recommended to use hot air gun for disassembling of this product. When using of hot air gun to repair other parts, please also take note that long time or high temperature exposure of this product will also damage the inductance device. If you need to use the hot air gun to disassemble the product, it is recommended to adjust the hot air gun temperature to 380 °C ±5 °C . The blower head of the hot air gun should be perpendicular and at least 1cm away from the product. After heating the product to the tin material melting point, use tweezers to remove the product from the PCB. 

<b>Product Series :</b> GTX	<b>Brand :</b> GOTREND ( Made in China )
<b>File Version :</b> GTX-EFD20P-S12C1-V1R2	<b>Editor :</b> Jerry Chen
<b>Established Date :</b> 2021.12.07	<b>Description :</b> SMD Transformer_Buck_M12
<b>Latest Edit Date :</b> 2022.04.13	<b>Product Type :</b> <input type="checkbox"/> Standard <input checked="" type="checkbox"/> Customize

**Features & Application :**

- \* Design the effective , by following customer needs.
- \* Features & Electrical characteristics : Customize
- \* Safety : Class A(105°C), B(130°C), F(155°C), H(180°C)
- \* Hi-Pot : Pri - Sec › 1500 VAC
- \* Turns ratio : 3:1:1



( Picture for reference only )

**Part No. Example :**

<b>GTX</b>	-	<b>EFD20</b>	<b>P</b>	-	<b>S</b>	<b>12</b>	<b>C1</b>
-----		-----	-----		-----	-----	-----
1		2	3		4	5	6
1	:	GOTREND Series code : GTX					
2	:	Core Structure & Size Code : EFD20					
3	:	P = Pb free < 1000 ppm					
4	:	S = SMD					
5	:	12 = 12 Pin Feet					
6	:	C1 = Serial Number					

**Basic Information :**

- Made in China**
- Pin Foot SMD**
- Shielding NO**
- J-STD-020 MSL Level 1**
- RoHS Compliant**
- REACH Compliant**
- Halogen Free**

- \* Operating Temp -40 ~ +85 ° C ( Including self - temperature rise )
- \* Storage Temp 1. -10 ~ +45 ° C , 50 ~ 60% RH ( Product with taping )  
2. -40 ~ +85 ° C ( On board )
- \* Storage Life Time 6 Month ( Less than 40 ° C and 60% RH )

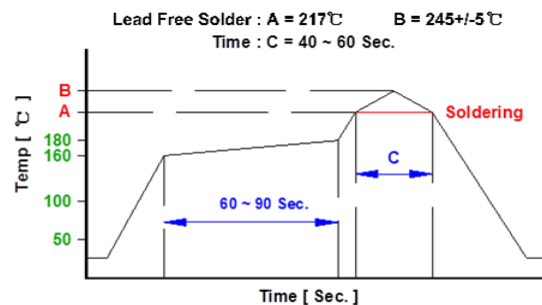
**Attention & Caution :**

- \* Keep out of Splashing water or salt water
- \* Avoid Toxic Gas (Hydrogen sulfide, Sulfurous acid, Chlorine, Ammonia)
- \* Vibrations or shocks which exceed the specified condition
- \* Dew condense
- \* Layout near the edge of PCB
- \* Over flexure after SMT mounting & PCBA
- \* Pin foot or SMD pad solderability: Pb free type is best within 6 months after delivery
- \* Humidity sensitive , IPC/JEDEC J-STD-020 MSL if over Level 1, recommend bake 30mins@150 degree before PCBA
- \* Caution for human life relative applications : PLS contact & consult with GOTREND team in design stage.

**Test Condition :**

- \* Equipment WK3260B , WK3265B - L , Q , DCR , IDC  
KEISIGHT E5061B Network analyzer - SRF  
TH9301A HI-POT TEST - AC , DC  
TH2511 - DCR
- \* Standard Atmosphere Conditions:  
Ambient Temperature 20 ± 15 ° C  
Humidity RH 65 ± 20%
- \* If there may be any doubt on the test result ,  
Measurement shall be made within the following limits:  
Ambient Temperature 25 ± 5 ° C  
Humidity RH 75 ± 10%

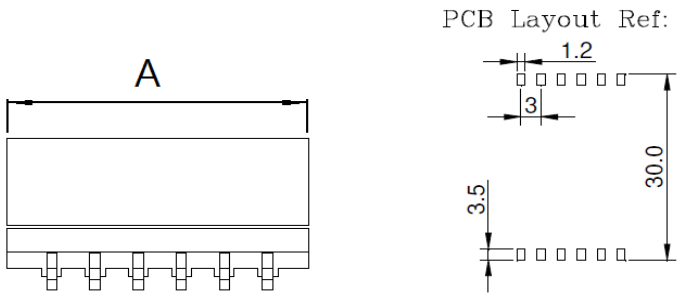
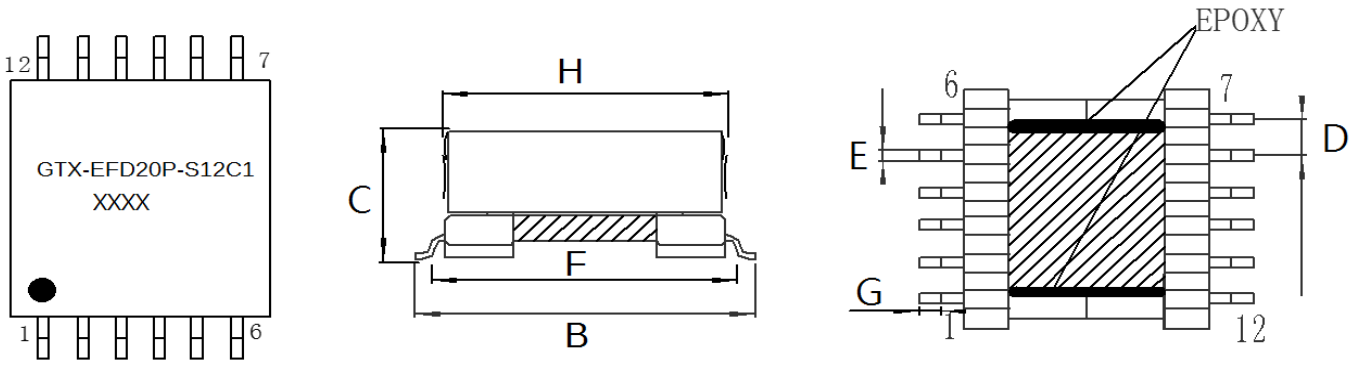
**Recommend IR Reflow Curve : GTX-IR-FILE001**



Notice : Iron Soldering , Solder < 30 Watt ,  
Direct touch the terminal x 3 Sec. Max. @ 350°C

<b>Product Series :</b> GTX	<b>Brand :</b> GOTREND ( Made in China )
<b>File Version :</b> GTX-EFD20P-S12C1-V1R2	<b>Editor :</b> Jerry Chen
<b>Established Date :</b> 2021.12.07	<b>Description :</b> SMD Transformer_Buck_M12
<b>Latest Edit Date :</b> 2022.04.13	<b>Product Type :</b> <input type="checkbox"/> Standard <input checked="" type="checkbox"/> Customize

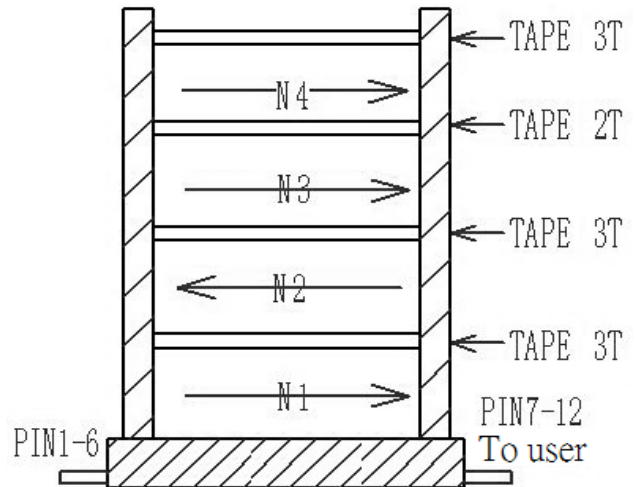
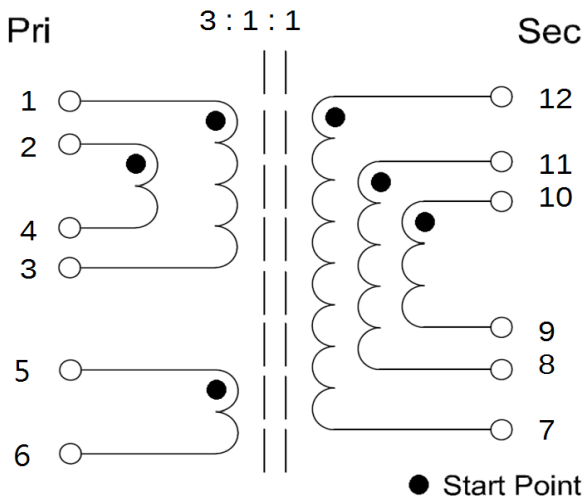
**Dimension : [ mm ]**



A ( Max. )	B ( Max. )	C ( Max. )	D ( +/- 0.25 )	E ( +/- 0.2 )
22.0	30.0	12.5	3.0	0.7
F ( Ref. )	G ( Typ. )	H ( Max. )		
24.5	1.5	23.0		

**Schematic :**

**Winding Sequence:**



<b>Product Series :</b> GTX	<b>Brand :</b> GOTREND ( Made in China )
<b>File Version :</b> GTX-EFD20P-S12C1-V1R2	<b>Editor :</b> Jerry Chen
<b>Established Date :</b> 2021.12.07	<b>Description :</b> SMD Transformer_Buck_M12
<b>Latest Edit Date :</b> 2022.04.13	<b>Product Type :</b> <input type="checkbox"/> Standard <input checked="" type="checkbox"/> Customize

**Production Process :**

Winding	Wire	Turns	Tape
N1 ( 1 - 3 )	2UEW-F 0.27 mm x 2P	18.0 Ts	3.0 Ts
N2 ( 12 - 7 )	2UEW-F 0.28 mm x 2C x 3P	6.0 Ts	3.0 Ts
N2 ( 11 - 8 )			
N2 ( 10 - 9 )			
N3 ( 2 - 4 )	2UEW-F 0.27 mm x 2P	18.0 Ts	2.0 Ts
N4 ( 5 - 6 )	2UEW-F 0.19 mm x1P	6.0 Ts	3.0 Ts

**Electrical Characteristics :**

Item	Specification	Test Condition	Test Equipment
Inductance ( 1,2 - 3,4 )	42 uH +/- 10%	250KHz / 0.7V	WK3260B
Inductance ( 1,2 - 3,4 )	37.8 uH Min	250KHz / 0.7V/ Idc 2.6A	WK3260B
DC Resistance ( 1 - 3 )	110 mOhm Max.	at 25°C	TH2511
DC Resistance ( 2 - 4 )	130 mOhm Max.		TH2511
DC Resistance ( 5 - 6 )	200 mOhm Max.		TH2511
DC Resistance ( 12 - 7 )	48 mOhm Max.		TH2511
DC Resistance ( 11 - 8 )	48 mOhm Max.		TH2511
DC Resistance ( 10 - 9 )	48 mOhm Max.		TH2511
HI-POT Test ( Pri - Sec )	1500 Vac		2.0 mA / 5 S
HI-POT Test ( Coil - Core )	500 Vac	2.0 mA / 5 S	TH9301A
Turn Ratio (2-4)	18TS , +/- 0.5TS	20KHz 1V @(1-3) = 18TS	TH2829AX
Turn Ratio (5-6) : (12-7) : (11-8) : (10-9)	6TS , +/- 0.5TS	20KHz 1V @(1-3) = 18TS	TH2829AX

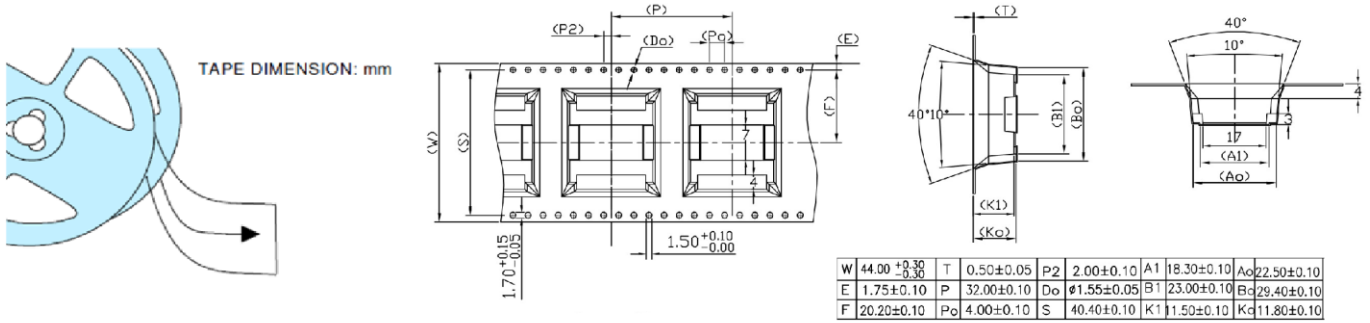
<b>Product Series :</b> GTX	<b>Brand :</b> GOTREND ( Made in China )
<b>File Version :</b> GTX-EFD20P-S12C1-V1R2	<b>Editor :</b> Jerry Chen
<b>Established Date :</b> 2021.12.07	<b>Description :</b> SMD Transformer_Buck_M12
<b>Latest Edit Date :</b> 2022.04.13	<b>Product Type :</b> <input type="checkbox"/> Standard <input checked="" type="checkbox"/> Customize

**Reliability :**

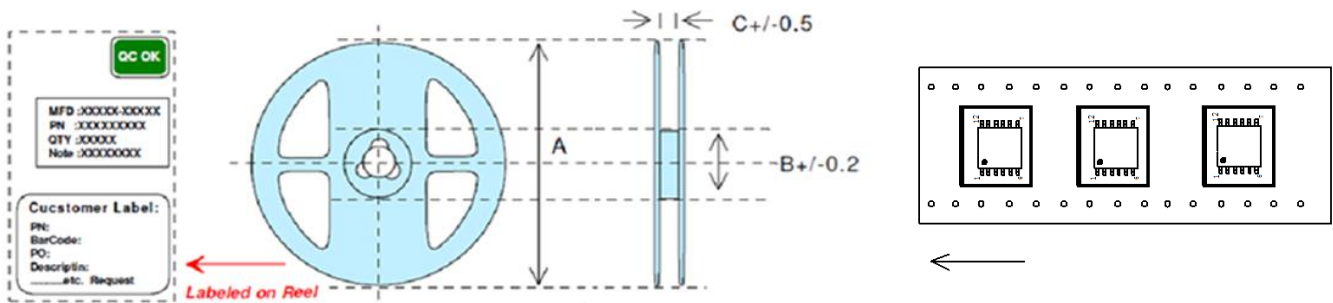
SN	Test Item	Test Condition				Specification
1	<b>Thermal Shock (Temperature Cycle)</b>	Temperature : -40 ° C ~ +85° C kept stabilized for 30 minutes each Cycle : 100 Cycles.				There must be no deformation or change in dimension. Inductance must not change more than the stated tolerance.
2	<b>Humidity Resistance</b>	Humidity : 90%~ 95% RH Temperature : 40 ± 2 ° C Test Time : 500 ± 12 Hours				There must be no case deformation or change in dimensions. Inductance must as specification stated.
3	<b>HighTemperature</b>	Temperature : 85 ± 2 ° C Humidity : 20% Test Time : 500 ± 12 Hours				There must be no case deformation or change in dimensions. Inductance must as specification stated.
4	<b>Low Temperature</b>	Temperature : -40 ± 2 ° C Test Time : 500 ± 12 Hours				There must be no case deformation or change in dimensions. Inductance must as specification stated.
5	<b>Temperature and Humidity Cycle</b>	<b>Step</b>	<b>Temp</b>	<b>Humidity</b>	<b>Time</b>	There must be no case deformation or change in dimensions. Inductance must as specification stated.
		1	25 ± 2 ° C	95 ~ 100% RH	3.0Hr	
		2	55 ± 2 ° C	95 ~ 96% RH	9.5Hr	
		3	25 ± 2 ° C	95 ~ 100% RH	9.5Hr	
6	<b>Vibration</b>	Frequency : 10Hz ~ 50Hz Amplitude : 1.5 mm Direction : X , Y , Z Time : 2 Hours each				Solder inductors on the test PCB.After vibration, there must be no deformation or change in dimension. Inductance must not change more than the stated tolerance.
7	<b>Soldering Heat Resistance</b>	Preheat : 120 ~ 150 ° C ( 60 sec ) Solder : H63A ( eutectic solder ) Solder Temp. : 260 ± 5 ° C Flux : Rosin Dip time : 10 ± 1 second				The chip must have no cracks.More than 75% of the terminal electrode must be covered with solder. For 96.5 Sn / 3.5 Ag Solder Past: > 217 oC / 90 Seconds. For 63.0 Sn / 37 Pb Solder Past: > 183 oC / 120 Seconds.

<b>Product Series :</b> GTX	<b>Brand :</b> GOTREND ( Made in China )
<b>File Version :</b> GTX-EFD20P-S12C1-V1R2	<b>Editor :</b> Jerry Chen
<b>Established Date :</b> 2021.12.07	<b>Description :</b> SMD Transformer_Buck_M12
<b>Latest Edit Date :</b> 2022.04.13	<b>Product Type :</b> <input type="checkbox"/> Standard <input checked="" type="checkbox"/> Customize

**Packaging Information :**

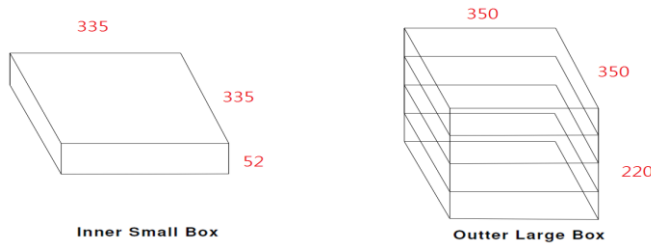


**Reel Dimensions : mm**



SIZE / mm	A	B	C	REEL SIZE	QTY / REEL
EFD20P	330	100	44.5	13"	140 PCS

**Box Package : mm**



Size	Box	Reels in Small Box	Small Box in Large Box
ALL SIZE		1	4