

# S12 REGULAR HOUSING

## 1x2 GPS Splitter

### DESCRIPTION

The S12 GPS Splitter is a one-input, two-output GPS splitter device. The typical application for this splitter allows an active GPS roof antenna input which is then split evenly between two receiving GPS units. The S12 can be configured to pass the DC from an RF output (J1) to the antenna input port in order to power an active GPS antenna on that port. The second RF output would feature a 200Ω DC load to simulate an antenna DC current draw for any receiver connected to that port.

### FEATURES

- Passes GPS L1/L2, and GNSS frequencies
- Excellent Gain Flatness
- Gain | L1 - L2 | < 2 dB
- RoHS, REACH, and WEEE Compliant
- CE Certified

### OPTIONS

- Amplified, Passive, and Custom Gain Options
- Pass Beacon
- Hermetically Sealed, EMI Shielding, and Waterproofing

*The S12 GPS Splitter comes with many available options to meet specific needs. Please contact GPS Source via phone, email, or visit the website for further information on product options and specifications.*



# 1. S12 Specifications

## 1.1 Electrical Specifications

Table 1-1. Operating Temperature -40°C to 85°C

Parameter			Conditions	Min	Typ	Max	Units
<b>Frequency Range</b>			Ant: J1, J2 50Ω or J2, J1 50Ω	1		1.7	GHz
<b>In/Out Impedance</b>			Ant: J1, J2		50		Ω
<b>Gain<sup>(1)</sup></b>	Standard	Amplified	Ant: J1, J2 50Ω or J2, J1 50Ω	23	24	25	dB
	Custom	Amplified	As Specified (XXdB)	XX - 1	XX	XX + 1	
<b>Loss-Passive</b>			Ant: J1, J2 50Ω or J2, J1 50Ω	4	4.5	5	dB
<b>Input SWR</b>			All Ports 50Ω			2:1	—
<b>Output SWR</b>			All Ports 50Ω			2:1	—
<b>1dB Comp. Pt</b>		Amplified	All Ports 50Ω		-32		dBm
<b>Input IP<sub>3</sub></b>		Amplified	All Ports 50Ω		-24		dBm
<b>Noise Figure</b>		Amplified	Ant: J1, J2 50Ω or J2, J1 50Ω			1.8	dB
<b>Gain Flatness</b>		Amplified	[L1 – L2] Ant: J1, J2 50Ω or J2, J1 50Ω			2	dB
		Passive					
<b>Amplified Balance</b>			[J1 – J2] Ant: J1, J2 50Ω or J2, J1 50Ω		0.5	1.0	dB
<b>Phase Balance</b>			Phase (J1 – J2) Ant: J1, J2 50Ω or J2, J1 50Ω			1	Degree
<b>Group Delay Flatness</b>			T <sub>d,max</sub> - T <sub>d,min</sub> ; J1 (Ant)			1	ns
<b>Isolation<sup>(1)</sup></b>	Standard	Amp/Pass	Adjacent Ports: Ant 50Ω	13			dB
	High	Amplified		30			
<b>Device Current (Amplified)</b>			Current Consumption of Device (Excludes antenna current.)			16	mA
<b>Antenna/ Through Current</b>	Inline voltage		Non-Powered Configuration, DC Input on J1			250	mA
<b>Max RF Input</b>		Amplified	Max RF Input Without Damage			0	dBm
		Passive					

- Notes: 1. Choose custom gain option to increase port-to-port isolation.  
 2. Performance guaranteed for N(F) connectors.

**Table 1-2. Input Voltage**

Parameter		Conditions	Min	Typ	Max	Units
<b>External Power</b>	110VAC	Wall Mount Transformer		110		VAC
	230/240 VAC	Wall Mount Transformer (Various international plug opt.)		230		
	DC Input <sup>(2)</sup>	Wall Mount Transformer (Includes PDC, PM, PMS, PMS38999 options)	8		28	VDC
<b>Inline Voltage</b> (Amplified/ Passive)	Pass DC	Non-Powered Configuration, Pass DC Input on Out 1 (J1) Block DC on Output J2	3		16	VDC
	Block DC <sup>(1)</sup>	Out 2 (J2) Block DC				

- Notes: 1. All DC Blocked outputs include 200 Ohm loads standard.  
 2. The maximum DC IN is 35V when the 1275/704 surge suppression options are selected.

## 2. Performance Data

### 2.1 S12 Amplified

Figure 2-1. Amplified: Gain vs. Frequency

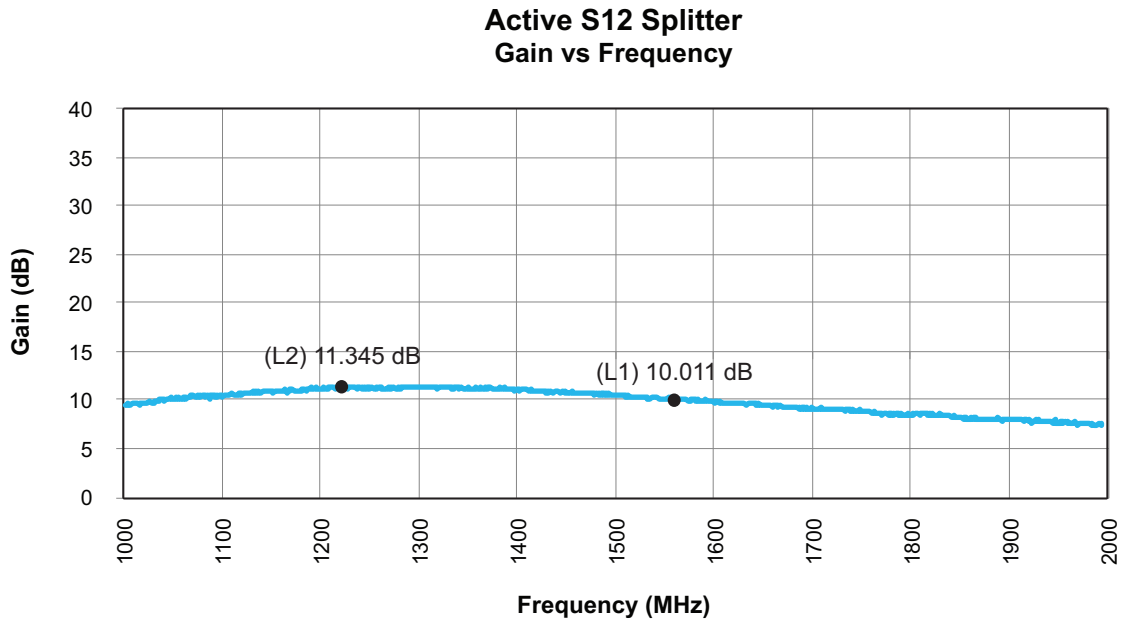
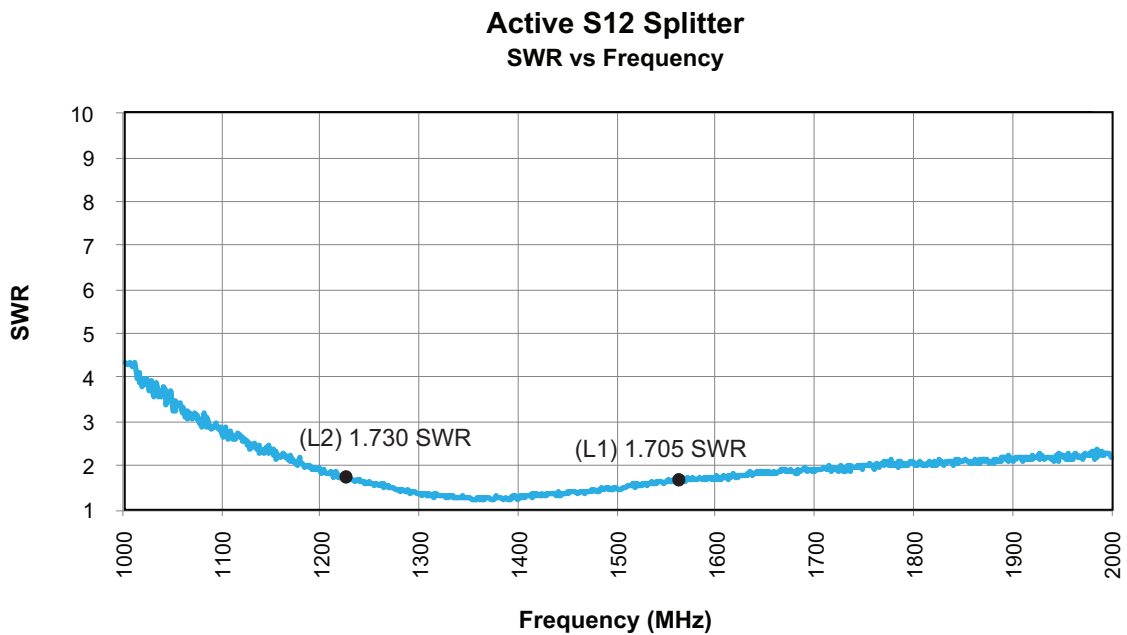


Figure 2-2. Amplified: SWR vs. Frequency



## 2.2 S12 Passive

Figure 2-3. Passive: Gain vs. Frequency

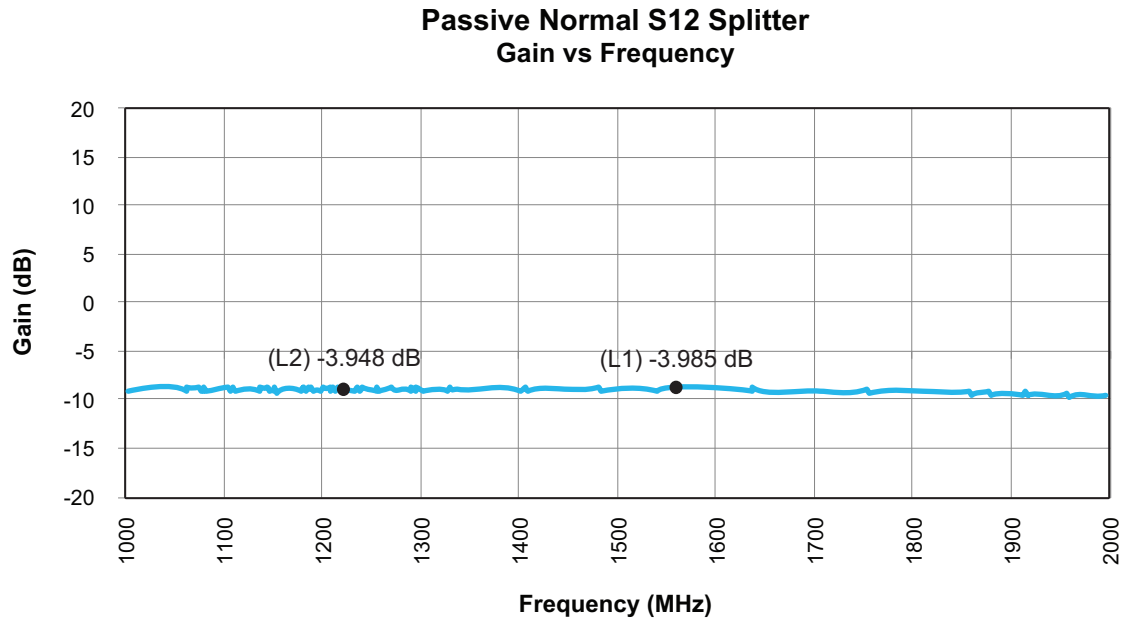
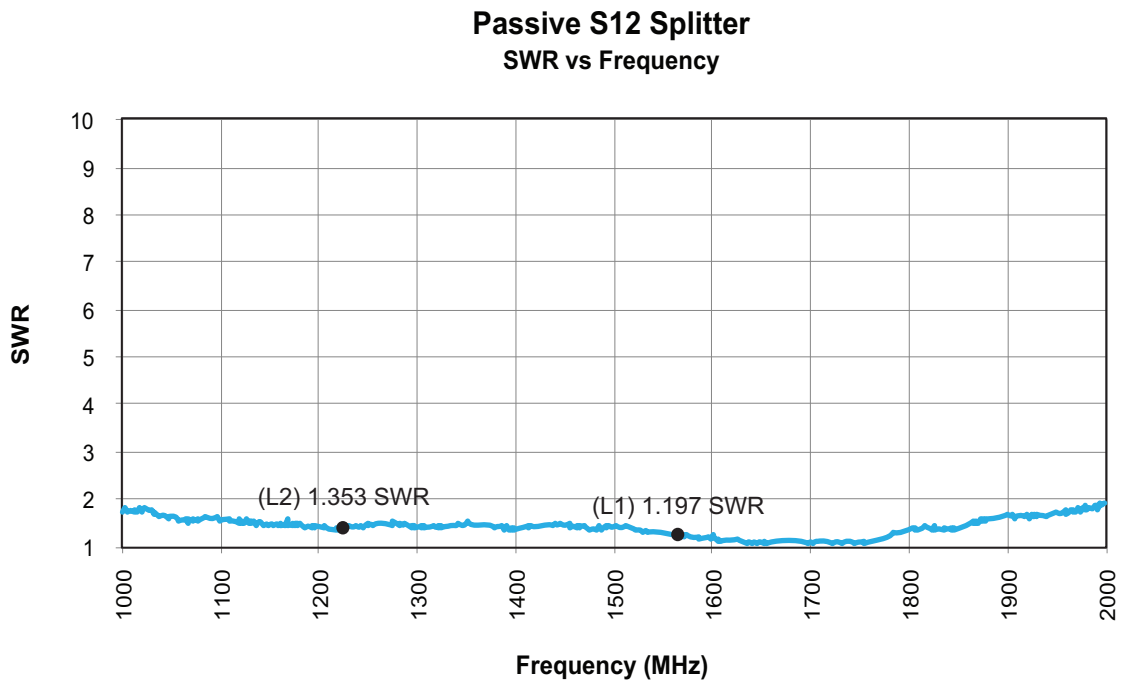


Figure 2-4. Passive: SWR vs. Frequency



## 2.3 S12 Active — High Isolation

Figure 2-5. Amplified High Isolation: Gain vs. Frequency

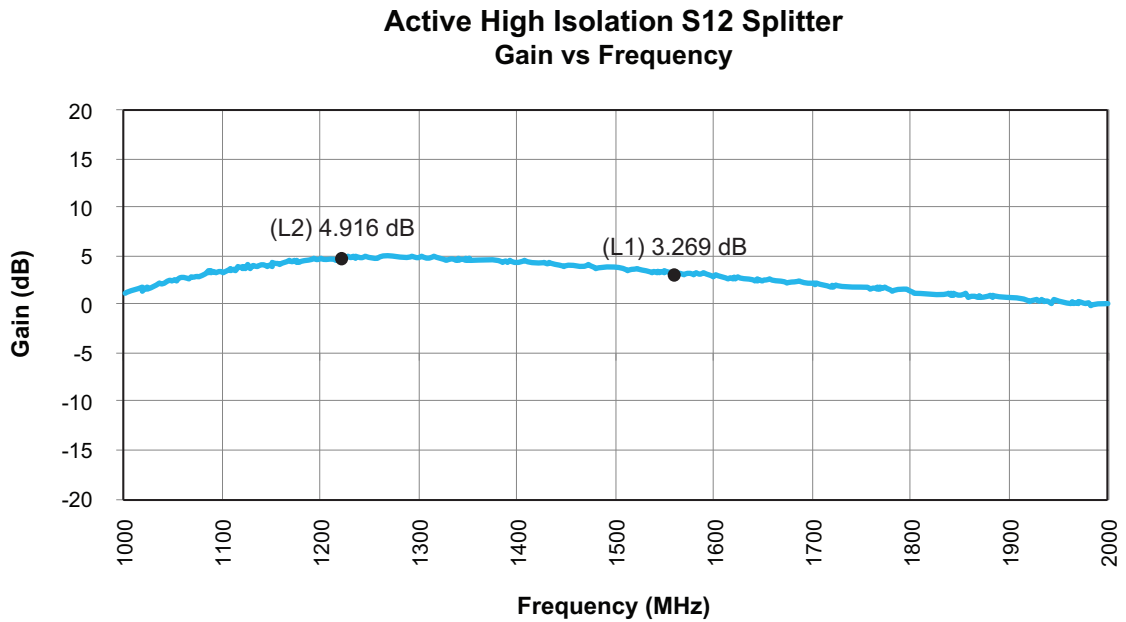
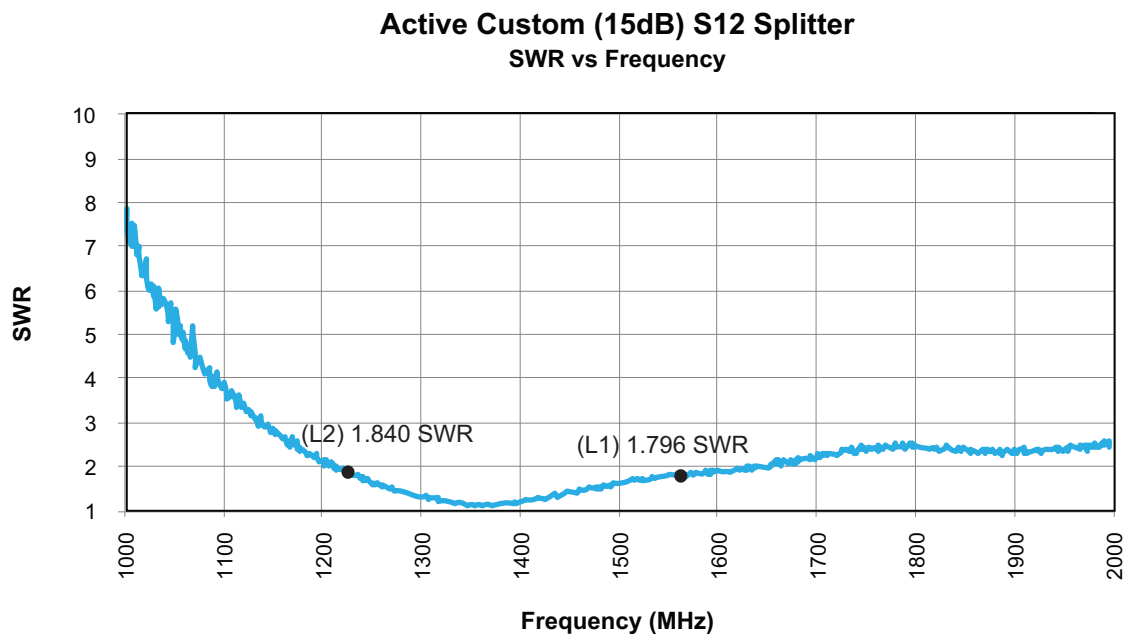


Figure 2-6. Amplified High Isolation: SWR vs. Frequency

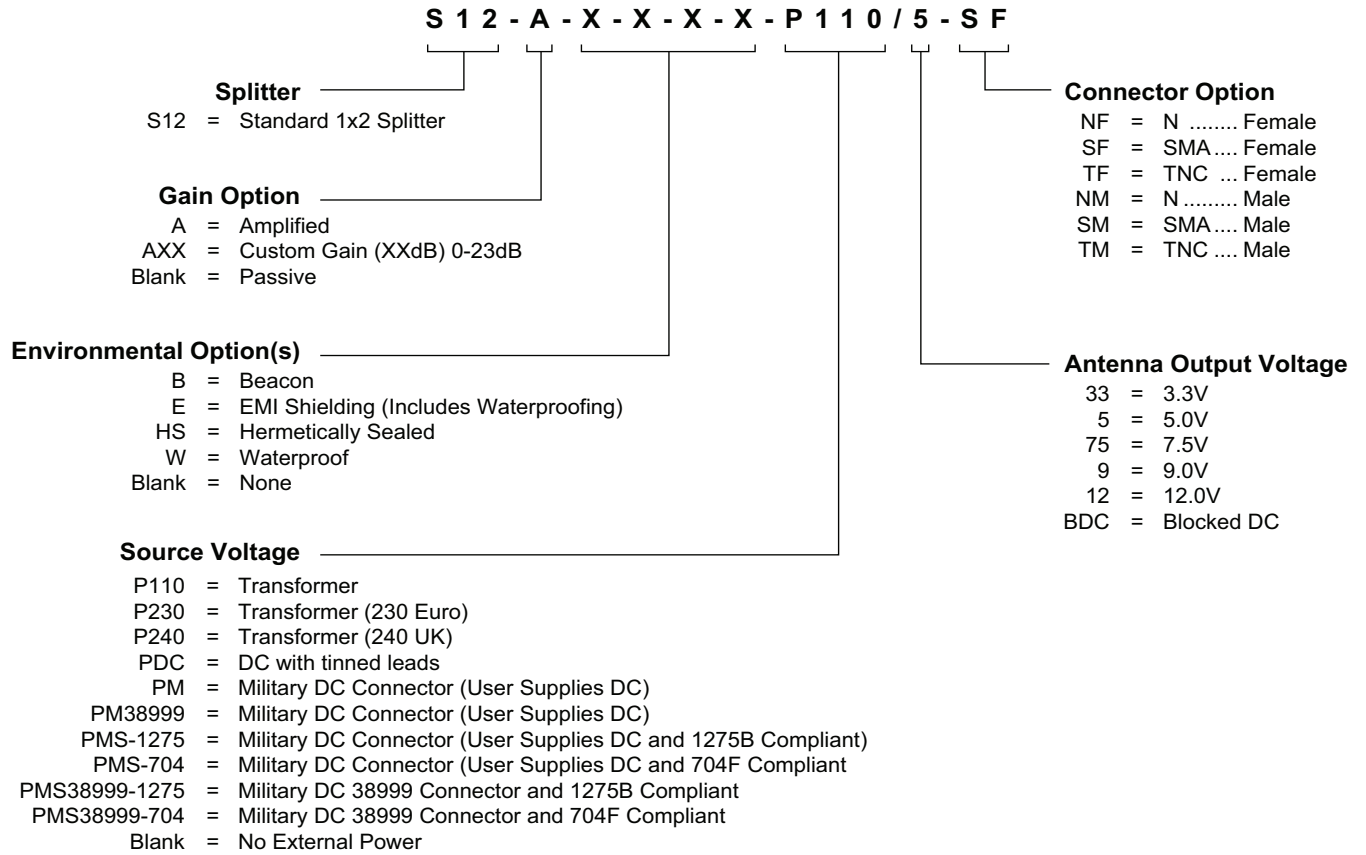


### 3. Product Options

Table 3-1. S12 Available Options

Power Supply			
Source Voltage Options		Voltage Input	Type
	P110	110VAC	Wall Mount Transformer
	P230	230VAC (Euro)	Wall Mount Transformer
	P240	240VAC (U.K.)	Wall Mount Transformer
	PM/PMS	DC 5VDC to 28VDC	Military Style Connector
	PDC	Power DC	Tinned Leads
Output Voltage	DC Voltage Out		
		3.3	
		5.0	
		7.5	
		9.0	
		12.0	
		BDC (Block DC)	
RF Connector			
Connector	Connector Type		Limitations
	N	(Female/Male)	N/A
	SMA	(Female/Male)	N/A
	TNC	(Female/Male)	N/A
Housing			
Housings	Housing Type		Limitations
		Standard	None
Output Options (Inline Voltage)			
Pass DC	Pass DC Output 1 (J1) to Input (Antenna)		
DC Blocked	Output 2 (J2) is DC Blocked and with 200Ω Load		

## 4. Product Code Decoder



Note: To have product/part codes customized to meet exact needs, contact GPS Source at [sales@gpssource.com](mailto:sales@gpssource.com) or visit the website at [www.gpssource.com](http://www.gpssource.com).



# 5. Mechanical Drawing

## S12 Regular Housing — FSA-ABA-AAX-BBZ

**ISOMETRIC VIEW FOR REFERENCE ONLY**

**RECOMMENDED MOUNTING PATTERN**

4X THRU OR TAPPED HOLES FOR #8 SCREW

ALL MATERIALS AND FINISHES SHALL COMPLY WITH EUROPEAN UNION RESTRICTION OF HAZARDOUS SUBSTANCES. (RoHS)

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		TOLERANCES UNLESS OTHERWISE SPECIFIED		DRAWN	DATE	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES IAW ASME Y14.5M - 1994	COMPANY NAME		
		LINEAR .X = ± .1 .XX = ± .01 .XXX = ± .005	ANGULAR ±* RADII SEE LINEAR	CHECKED	DATE		DESCRIPTION FSA 1 IN 2 OUT PWR 110VAC/5DC TO ANT N(F) CONN PASSIVE	GPSS FILE NAME	REV
RoHS	GPS SOURCE PART NUMBER	MATERIAL N/A	FINISH N/A	MFG	DATE		004		
				APPROVED	DATE 12-09-15	SCALE 1:1	MASS	lb	SHEET 1 of 1

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## S12 Regular Housing Data Sheet

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AS9100 and ISO 9001 Compliant Company



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