

## **TOYOTA 1VD-FTV**

**4.5L Turbo Diesel**



**250 Amp**

**HIGH  
OUTPUT  
ALTERNATOR**

**SPECIFICATION  
SHEET**

**SBC-T4.5TD-250XP**

**SMART BATTERY CHARGER**

17779 Main Street Suite C  
Irvine, CA 92614

Tel: +1 (949) 333-3800

Fax: +1 (949) 333-3804

[www.SmartBatteryCharger.net](http://www.SmartBatteryCharger.net)

## DESCRIPTION

This SBC high-output alternator is designed from the ground up specifically for the Toyota 1VD-FTV engine. It is built to supply ample voltage and amperage for high-draw charging systems in vehicles operating in harsh environments. This system consists of an internally regulated 250 amp alternator. The alternator produces a maximum of 250 amps and a minimum of 186 amps at low idle speeds. Maximum output is achieved above 1000 engine RPM. The alternator has a maximum efficiency in excess of 75 percent. All SBC alternators are completely manufactured in the USA using components from the USA or Japan. They are chosen for their durability, dependability and unrivalled, proven performance.

## TECHNOLOGY

This sophisticated charging system features a newly designed, advanced proprietary stator winding that maximizes efficiency with nearly 80 percent sectional density of the winding coupled with very low coil resistance. This gives the alternator maximum low speed output as well as a 90 percent reduction of magnetic pulsation. The stator windings are built in a cancel circuit to minimize electrical noise. The internal regulator is a proprietary design, advanced multifunction digital regulator that completely integrates into a vehicle's PCM through the OEM wiring harness retaining all vehicle specific functions such as internal temperature compensation, lamp terminal monitoring, load response control, and alternator load factor.

The rectifier is mounted on-board the alternator and consists of twelve 40 Amp press-fit diodes. The brush holder assembly and slip ring are environmentally protected and the bearings are premium, heavy-duty and oversized. The alternator housings are precision-machined, cast aluminium. All components exceed OEM or Military specifications and are selected for maximum performance and reliability.

## MOUNTING

The alternator is specially designed to fit directly in the OEM mounting location with no modification. All electrical connections also retain OEM fitment and remain in original locations. The alternator features a custom machined drive pulley that is 5 percent smaller than the OEM diameter for increased idle output while retaining OEM belt length. The pulley is precision CNC 6061T6 aluminium and has a .002 hard anodized coating for wear resistance and durability.

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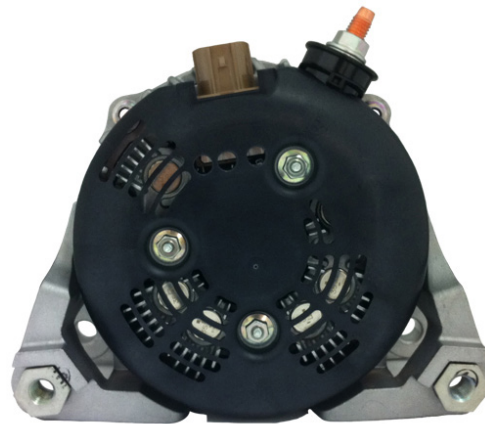
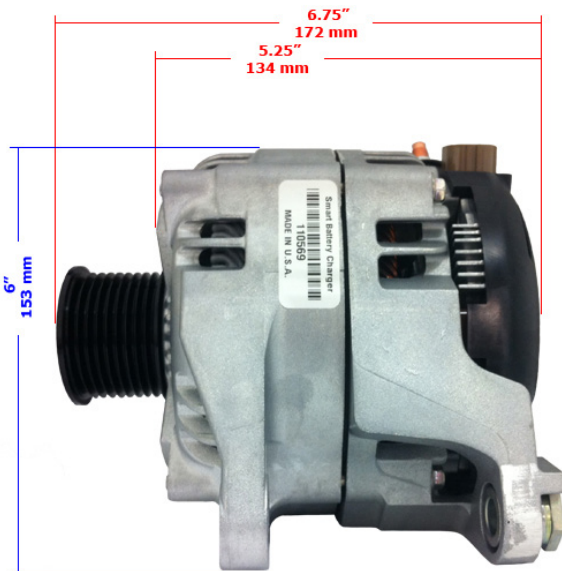
# ALTERNATOR PERFORMANCE & VEHICLE DEMAND

The OEM alternator for the 1VD-FTV is rated at 150 amps and produces 90 amps at engine idle. Engine idle is ~650 RPM without A/C on and ~750 RPM with the A/C running. This SBC alternator generates 186 amps at normal engine idle and ~200 amps with the A/C running. The vehicle needs a maximum of 75 amps to supply existing electrical loads with all accessories on leaving little room for additional accessories. The supplied alternator will supply an additional 94 amps of available output at idle and up to 100 amps at highway speeds.

<b>Engine Speed</b>	<b>Vehicle Demand</b>	<b>OEM Alternator</b> <i>Remaining Output With All OEM Loads</i>	<b>SBC Alternator</b> <i>Remaining Output With All OEM Loads</i>
650 RPM <i>Idle A/C Off</i>	90 Amps	0 Amps	94 Amps
750 RPM <i>Idle A/C On</i>	130 Amps	10 Amps	70 Amps
Normal Driving	130 Amps	20 Amps	120 Amps

## DURABILITY

The supplied charging system is manufactured to the highest quality standards. It is designed and manufactured in the USA using only components made in the USA or Japan. All parts are carefully chosen and used for their durability, dependability and proven performance in the field.

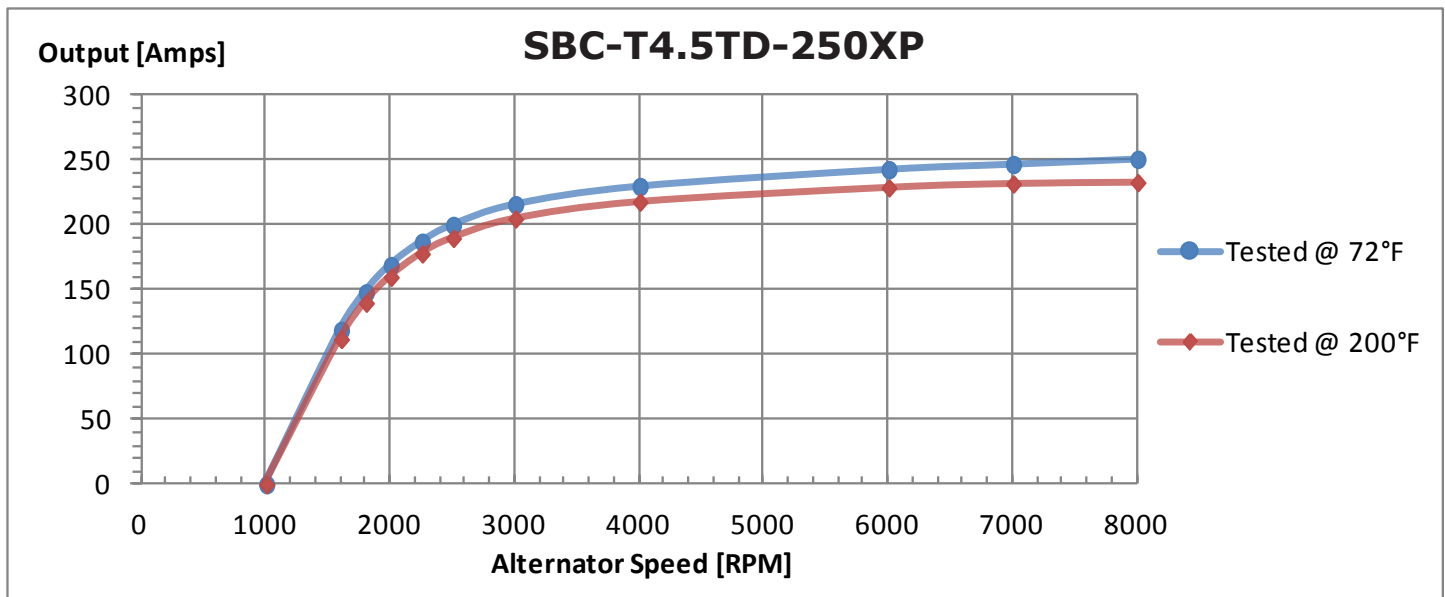


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# PART NUMBER: SBC-T4.5TD-250XP

Description	High Output Alternator
Availability	In Stock
Volts	14
Amps @ Normal Engine Idle	186
Amps @ Fast Engine Idle	200
Maximum Amps	251
Mounting Style	Direct Fit to OEM Mounts
Rotation	Clockwise
Housing Material	A305 Aluminium
Housing Finish	Natural Aluminium
Positive Output Stud	8 mm x 1.25 Copper
Negative	Case Ground
Insulated Ground	No
Regulator Sensing	Internal
Regulation	Internal
Regulator Type	OEM
Excitation	Vehicle OEM
Rotor Shaft Diameter	17 mm
Pulley	6061T6 Hard Anodized Aluminium
Rectifier	Internal 12x Sanken 40a
Shipping Weight	16 lbs (7.3 kg)



Output Tested @ 14V

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