



Smart Abs

SA35 (Smart Abs) is an ultra-small, multi-turn type absolute encoder with a hollow shaft. It is shaped for easy installation on small AC servo motors.

Corresponding application If it clicks, details will looking-get.

Defence Factory Science (Amusement) Car

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The resolution for output is 11 bits for a single turn or 13 bits for multiple turn. The number of signal lines is minimized by the use of serial data transmission mode. The encoder outputs incremental signals (2048C/T A, Bch, 1C/T Zch) in addition to absolute signals.

Features

- Ultra-small size
- Serial data transmission mode
- Self-diagnostic function
- At power outage, multiple revolution data are backed up by an externally installed battery and built-in capacitor.

SA35(TS5643): SPECIFICATION LIST

SA35(TS5643) Electrical Spec		
Resolution	Absolute	11 bit/revolution, 13 bit/multiple revolution
	Incremental	2,048C/T A, Bch, 1C/T Zch
Output Phase	Pure Binary Code	
Power Supply	DC+5V±5%	
Consumption Current	150mA(Typ.) Normal Operation 60µA(Typ.) Battery Operation	
Output Form	Line Driver	AM26C31 20mA
Max Response Frequency	170KHz Absolute Signal 170KHz Incremental Signal	
Serial Data Transfer Cycle	8µs	
Data Code	Manchester Code	
SA35(TS5643) Mechanical Spec		
Starting Torque	5.9 × 10 ⁻³ N·m(60gf·cm) Max	
Moment of Inertia	1.0 × 10 ⁻⁶ kg·m ² Typ.(1.0g·cm ²)	
Maximum Rotating Speed	88.3s ⁻¹ (5,000rpm)(mechanical Spec.)Max	
Mounting Tolerances	Radial	0.05mm TIR Max
	Axial	0.2mm Max
	Angular	0.1°
Operating Temp. Range	-10°C to +86°C	
Storage Temp. Range	-20°C to +90°C	
Protective Construction	Not Enclosed	
Vibration	98m/s ² (10G)(5-2,000Hz) for 2hours	
Shock	1,960m/s ² (200G)11msec,3 times	
Mass	0.3kg Max Without Cable	

*External Battery (VB) recommended :
TOSHIBA Lithium Battery ER6VR.

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SA35(TS5667N120)/SA48(TS5667N420): SPECIFICATION LIST

SA35(TS5667N120)/SA48(TS5667N420) Electrical Spec		
Resolution	Absolute Signal	17bit/turn and 16bit turns Total 33bit
Output Phase	Pure Binary Code	
Power Supply	DC+5V±5%	
Consumption Current	150mA (Typ.) Normal Operation 100µA (Typ.) Battery Operation	
Output Form	Line Driver	ADM485 20mA
Max Response Frequency	13MHz Normal Operation 13MHz Battery Operation	
Serial Data Transfer Cycle	2.5Mbps	
Data Code	Base Band NRZ (TWO-WAY)	
E ² PROM Accesable Address	8bit × 0 to 79Address	
SA35(TS5667N120)/SA48(TS5667N420) Mechanical Spec		
Starting Torque	5.9 × 10 ⁻³ N·m(60gf·cm) Max(TS5667N120)	
	9.8 × 10 ⁻³ N·m(100gf·cm)Max(TS5667N420)	
Moment of Inertia	1.0 × 10 ⁻⁶ kg·m ² Typ.(TS5667N120) 6.5 × 10 ⁻⁶ kg·m ² Typ.(TS5667N420)	
Maximum Rotating Speed	100s ⁻¹ (6,000rpm) (Mechanical Spec.) Max	
Mounting Tolerances	Radial	0.05mm TIR Max
	Axial	0.1mm Max
	Angular	0.1°
Operating Temp. Range	-10°C to +85°C	
Storage Temp. Range	-20°C to +90°C	
Protective Construction	Not Enclosed TS5667N120 TS5667N420	
Vibration	98m/s ² (10G)(5-2,000Hz) for 2hours	
Shock	1,960m/s ² (200G) 11msec, 3 times	
Mass	0.3kg Max TS5667N120 0.5kg Max TS5667N420 Without Cable	

*External Battery (VB) recommended :
TOSHIBA Lithium Battery ER3V.

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SA48(TS5667N440): SPECIFICATION LIST

SA48(TS5667N440) Electrical Spec		
Resolution	Absolute Signal	13bit/turn and 13bit turns Total 26bit

Output Phase	Pure Binary Code	
Power Supply	DC+5V±5%	
Consumption Current	150mA (Typ.) Normal Operation 100µA (Typ.) Battery Operation	
Output Form	Line Driver	Differential Line Driver RS422A Compatible
Max Response Frequency	13MHz Normal Operation 13MHz Battery Operation (Multi Turn Data only)	
Serial Data Transfer Cycle	Request Synchronized	
Data Code	Manchester Code (RZ Format)	
SA48(TS5667N440) Mechanical Spec		
Starting Torque	9.8 × 10 ⁻³ N·m (100gf·cm) Max	
Moment of Inertia	6.5 × 10 ⁻⁶ kg·cm ² (65g·cm ²)Typ.	
Maximum Rotating Speed	100s ⁻¹ (6,000rpm) (Mechanical Spec.) Max	
Mounting Tolerances	Radial	0.05mm TIR Max
	Axial	0.1mm Max
	Angular	0.1°
Operating Temp. Range	-10°C to +85°C	
Storage Temp. Range	-20°C to +90°C	
Protective Construction	Not Enclosed	
Vibration	98m/s ² (10G)(5-2,000Hz) for 2hours	
Shock	1,960m/s ² (200G) 11msec, 3times	
Mass	0.5kg Max Without Cable	

*External Battery (VB) recommended :
TOSHIBA Lithium Battery ER3V.

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SA48(TS5667N480) : SPECIFICATION LIST

SA48(TS5667N480) Electrical Spec		
Resolution	Absolute Signal	11bit/turn and 13bit/8192 turns (total 24bit)
	Incremental Signal	2,048 C/T, A, B Phase
Output Phase	Pure Binary Code	
Power Supply	DC+5V±5%	
Current Consumption	150mA (Typ.) Normal Operation 100µA (Typ.) Battery Operation	
Output Form	Line Driver	Differential Line Driver RS422A Compatible
Max Response Frequency	13MHz Normal Operation 13MHz Battery Operation (Multi Turn Data only)	
Serial Data Transfer Cycle	51µs	
Data Code	Manchester Code (RZ Format)	
SA48(TS5667N480)Mechanical Spec		
Starting Torque	9.8 × 10 ⁻³ N·m (100gf·cm) Max.	
Moment of Inertia	6.5 × 10 ⁻⁶ kg·m ² (65g·cm ²)Typ.	
Maximum Rotating Speed	100s ⁻¹ (6,000rpm) (Mechanical Spec.) Max	
Mounting Tolerances	Radial	0.05mm TIR Max
	Axial	0.1mm Max
	Angular	0.1°
Operating Temp. Range	-10°C to +85°C	
Storage Temp. Range	-20°C to +90°C	
Protective Construction	Not Enclosed	
Vibration	98m/s ² (10G)(5-2,000Hz) for 2hours	
Shock	1,960m/s ² (200G) 11msec, 3 times	
Mass	0.5kg Max Without Cable	

*External Battery (VB) recommended :
TOSHIBA Lithium Battery ER3V.

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