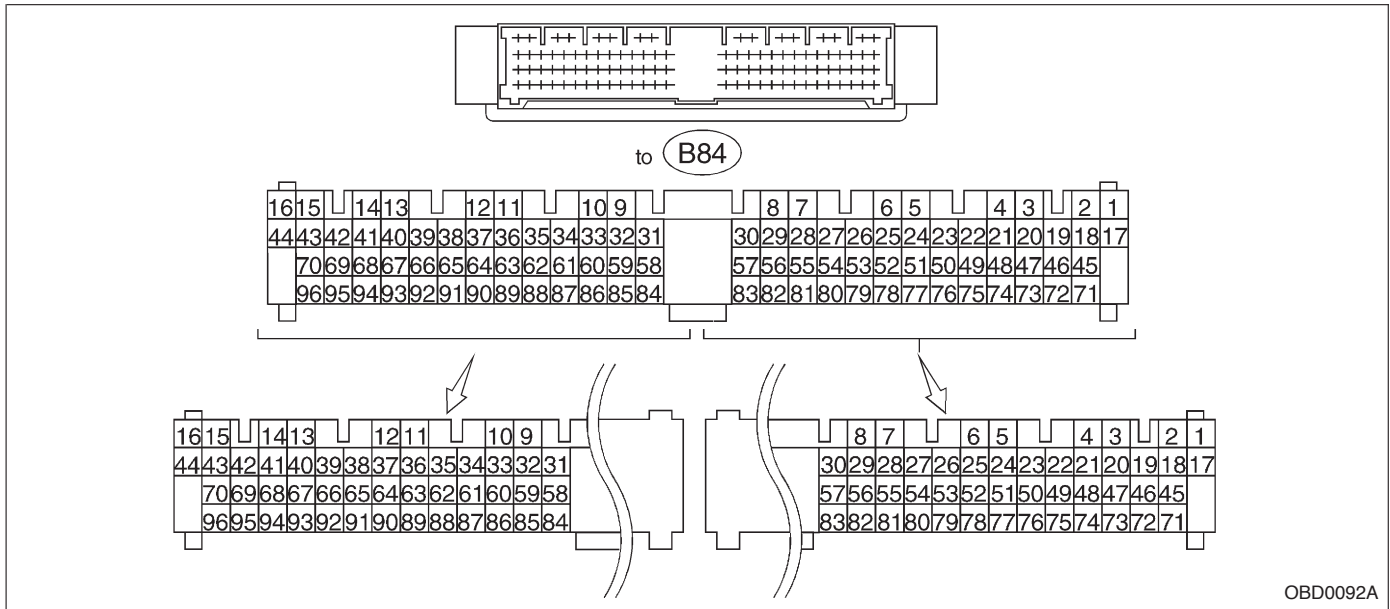


# 5. Specified Data

## 1. ENGINE CONTROL MODULE (ECM) I/O SIGNAL



OBD0092A

Content	Connector No.	Terminal No.	Signal (V)		Note	
			Ignition SW OFF (Engine OFF)	Engine ON (Idling)		
Crankshaft position sensor	Signal (+)	B84	8	0	-7 - +7	Sensor output waveform
	Signal (-)	B84	29	0	0	-
	Shield	B84	54	0	0	-
Camshaft position sensor	Signal (+)	B84	7	0	-7 - +7	Sensor output waveform
	Signal (-)	B84	28	0	0	-
	Shield	B84	54	0	0	-
Mass air flow sensor	Signal	B84	5	0 - 0.3	0.8 - 1.2	-
	Shield	B84	57	0	0	-
	GND	B84	20	0	0	-
Throttle position sensor	Signal	B84	6	Fully closed: 0.2 - 1.0 Fully opened: 4.2 - 4.7		-
	Power supply	B84	21	5	5	-
	GND	B84	20	0	0	-
Front oxygen sensor	Signal	B84	23	0	0 - 0.9	-
	Shield	B84	56	0	0	-
Rear oxygen sensor	Signal	B84	24	0	0 - 0.9	-
	Shield	B84	56	0	0	-
Engine coolant temperature sensor	B84	22	1.0 - 1.4	1.0 - 1.4	After warm-up	
Vehicle speed sensor 2	B84	83	0 or 5	0 or 5	"5" and "0" are repeatedly displayed when vehicle is driven.	
Starter switch	B84	86	0	0	Cranking: 8 to 14	
A/C switch	B84	60	ON: 10 - 13 OFF: 0	ON: 13 - 14 OFF: 0	-	
Ignition switch	B84	85	10 - 13	13 - 14	-	
Neutral position switch (MT)	B84	82	ON: 5.0±0.5 OFF: 0		● On MT model; switch is ON when gear is in neutral position.	
Neutral position switch (AT)			ON: 0 OFF: 5.0±0.5		● On AT model; switch is ON when shift is in "N" or "P" position.	
Test mode connector	B84	84	5	5	When connected: 0	

Content		Connector No.	Terminal No.	Signal (V)		Note
				Ignition SW ON (Engine OFF)	Engine ON (Idling)	
Knock sensor	Signal	B84	3	2.8	2.8	—
	Shield	B84	56	0	0	—
AT/MT identification		B84	81	(AT) 5 (MT) 0	(AT) 5 (MT) 0	When measuring voltage between ECM and body.
Back-up power supply		B84	39	10 — 13	13 — 14	Ignition switch "OFF": 10 — 13
Control unit power supply		B84	1	10 — 13	13 — 14	—
			2			
Ignition control	# 1, # 2	B84	41	0	1 — 3.4	—
	# 3, # 4	B84	40	0	1 — 3.4	—
Fuel injector	# 1	B84	96	10 — 13	1 — 14	Waveform
	# 2	B84	70	10 — 13	1 — 14	Waveform
	# 3	B84	44	10 — 13	1 — 14	Waveform
	# 4	B84	16	10 — 13	1 — 14	Waveform
Idle air control solenoid valve	OPEN end	B84	14	—	1 — 13	Waveform
	CLOSE end	B84	13	—	13 — 1	Waveform
Fuel pump relay control		B84	32	ON: 0.5, or less OFF: 10 — 13	0.5, or less	—
A/C relay control		B84	31	ON: 0.5, or less OFF: 10 — 13	ON: 0.5, or less OFF: 13 — 14	—
Radiator fan relay 1 control		B84	74	ON: 0.5, or less OFF: 10 — 13	ON: 0.5, or less OFF: 13 — 14	—
Radiator fan relay 2 control		B84	73	ON: 0.5, or less OFF: 10 — 13	ON: 0.5, or less OFF: 13 — 14	With A/C vehicles only
Self-shutoff control		B84	63	10 — 13	13 — 14	—
Malfunction indicator lamp		B84	58	—	—	Light "ON": 1, or less Light "OFF": 10 — 14
Engine speed output		B84	64	—	0 — 13, or more	Waveform
Torque control signal		B84	79	5	5	—
Mass air flow signal for AT		B84	47	0 — 0.3	0.8 — 1.2	—
Purge control solenoid valve		B84	72	ON: 1, or less OFF: 10 — 13	ON: 1, or less OFF: 13 — 14	—
Atmospheric pressure sensor		B84	26	3.9 — 4.1	2.0 — 2.3	—
Pressure sources switching solenoid valve		B84	15	ON: 1, or less OFF: 10 — 13	ON: 1, or less OFF: 13 — 14	—
EGR solenoid valve		B84	71	ON: 1, or less OFF: 10 — 13	ON: 1, or less OFF: 13 — 14	—
Front oxygen sensor heater signal		B84	38	0 — 1.0	0 — 1.0	—
Rear oxygen sensor heater signal		B84	37	0 — 1.0	0 — 1.0	—
Fuel temperature sensor		B84	25	2.5 — 3.8	2.5 — 3.8	● 2200 cc AWD except Taiwan model ● Ambient temperature: 25°C (77°F)
Fuel level sensor		B84	27	0.12 — 4.75	0.12 — 4.75	2200 cc AWD except Taiwan model
Fuel tank pressure sensor	Signal	B84	4	2.3 — 2.7	2.3 — 2.7	● 2200 cc AWD except Taiwan model ● The value obtained after the fuel filler cap was removed once and recapped.
	Power supply	B84	21	5	5	—
	GND	B84	20	0	0	—
Fuel tank pressure control solenoid valve		B84	10	ON: 1, or less OFF: 10 — 13	ON: 1, or less OFF: 13 — 14	2200 cc AWD except Taiwan model
Vent control solenoid valve		B84	35	ON: 1, or less OFF: 10 — 13	ON: 1, or less OFF: 13 — 14	2200 cc AWD except Taiwan model
TCS signal		B84	61	0 — 7	0 — 7	Waveform

Content	Connector No.	Terminal No.	Signal (V)		Note
			Ignition SW ON (Engine OFF)	Engine ON (Idling)	
AT diagnosis input signal	B84	80	Less than 1 ↔ More than 4	Less than 1 ↔ More than 4	Waveform
GND (sensors)	B84	20	0	0	—
GND (injectors)	B84	69	0	0	—
		95			
GND (ignition system)	B84	94	0	0	—
GND (power supply)	B84	19	0	0	—
		46			
GND (control systems)	B84	17	0	0	—
		18			
GND (oxygen sensor heater)	B84	42	0	0	—

## 2. ENGINE CONDITION DATA

Content	Model	Specified data
Mass air flow	2200 cc	1.7 — 3.3 (g/sec): Idling
		7.1 — 14.2 (g/sec): 2,500 rpm racing
	2500 cc	2.2 — 4.2 (g/sec): Idling
		8.6 — 14.5 (g/sec): 2,500 rpm racing
Engine load	2200 cc	1.6 — 2.9 (%): Idling
		6.4 — 12.8 (%): 2,500 rpm racing
	2500 cc	1.9 — 3.5 (%): Idling
		7.2 — 12.1 (%): 2,500 rpm racing

Measuring condition:

- After warm-up the engine.
- Gear position is in “N” or “P” position.
- A/C is turned OFF.
- All accessory switches are turned OFF.