

Ordering number:EN3196

NPN Epitaxial Planar Silicon Transistor



**2SD2176**

**Motor Driver Applications**

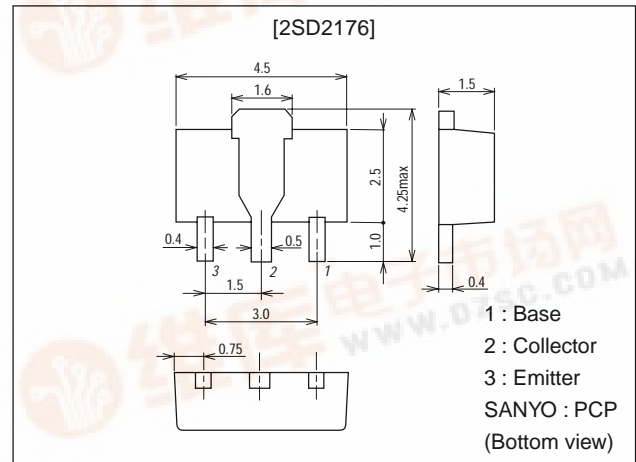
**Features**

- Darlington connection.
- On-chip Zener diode of 60±10V between collector and base.
- High inductive load handling capability.
- Small-sized package.

**Package Dimensions**

unit:mm

2038A



**Specifications**

**Absolute Maximum Ratings at Ta = 25°C**

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V <sub>CB0</sub>	On-chip Zener diode (60±10V)	50	V
Collector-to-Emitter Voltage	V <sub>CEO</sub>	On-chip Zener diode (60±10V)	50	V
Emitter-to-Base Voltage	V <sub>EBO</sub>		6	V
Collector Current	I <sub>C</sub>		1.2	A
Collector Current (Pulse)	I <sub>CP</sub>		2.5	A
Base Current	I <sub>B</sub>		0.2	A
Collector Dissipation	P <sub>C</sub>	Mounted on ceramic board (250mm <sup>2</sup> ×0.8mm)	1.3	W
Junction Temperature	T <sub>j</sub>		150	°C
Storage Temperature	T <sub>stg</sub>		-55 to +150	°C

**Electrical Characteristics at Ta = 25°C**

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I <sub>CB0</sub>	V <sub>CB</sub> =40V, I <sub>E</sub> =0			10	µA
Emitter Cutoff Current	I <sub>EBO</sub>	V <sub>EB</sub> =5V, I <sub>C</sub> =0			2	mA
DC Current Gain	h <sub>FE</sub>	V <sub>CE</sub> =3V, I <sub>C</sub> =500mA	1000		20000	
Collector-to-Emitter Saturation Voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> =500mA, I <sub>B</sub> =1mA		1.0	1.5	V
Base-to-Emitter Saturation Voltage	V <sub>BE(sat)</sub>	I <sub>C</sub> =500mA, I <sub>B</sub> =1mA		1.5	2	V
Collector-to-Base Breakdown Voltage	V <sub>(BR)CBO</sub>	I <sub>C</sub> =100µA, I <sub>E</sub> =0	50		70	V
Collector-to-Emitter Breakdown Voltage	V <sub>(BR)CEO</sub>	I <sub>C</sub> =1mA, R <sub>BE</sub> =∞	50		70	V
Inductive Load Handling Capability	Es/b	L=30mH, R <sub>BE</sub> =100Ω	15			mJ

Marking : DQ

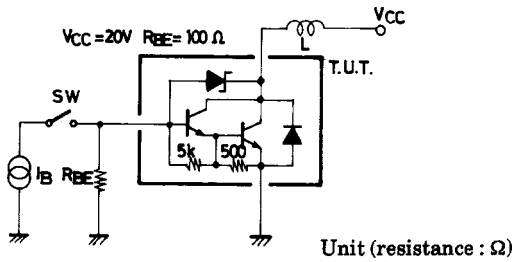
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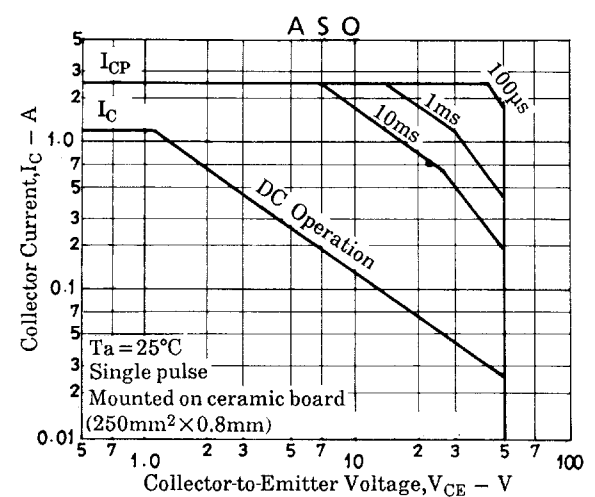
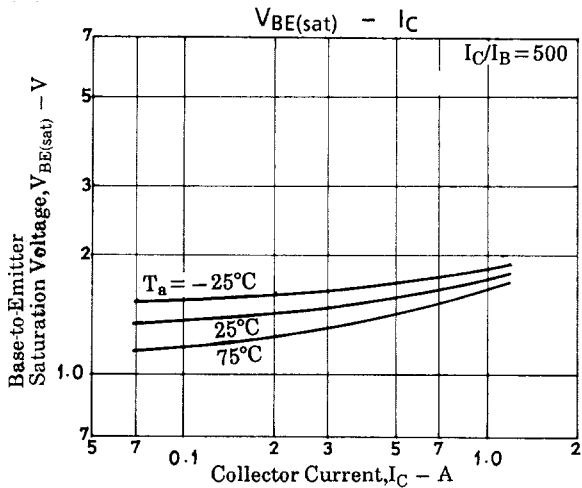
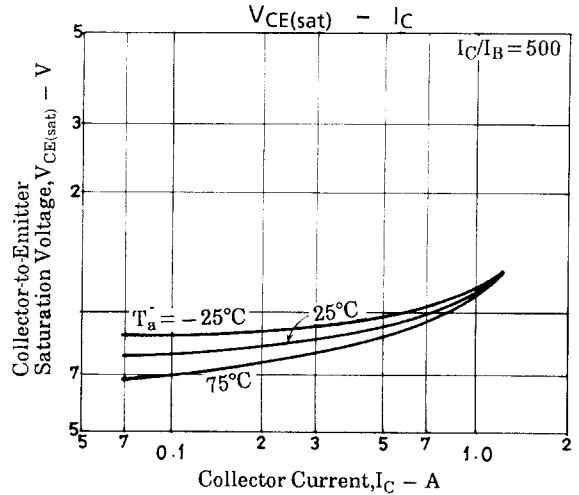
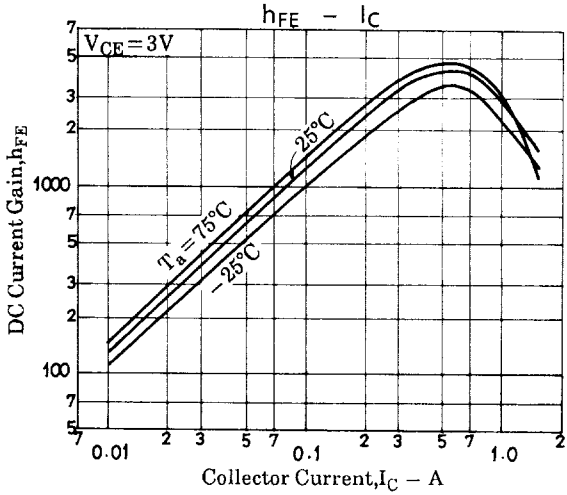
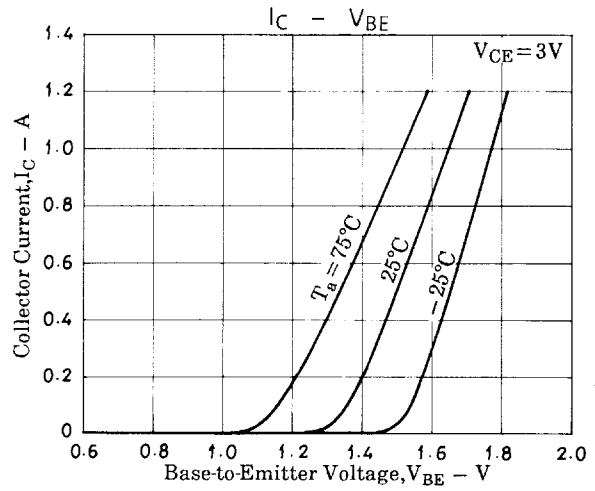
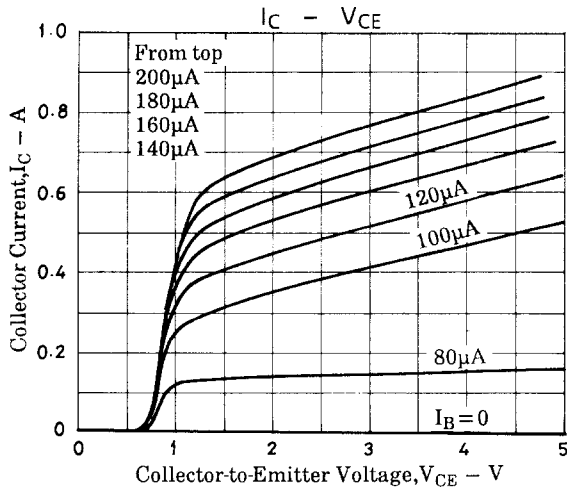
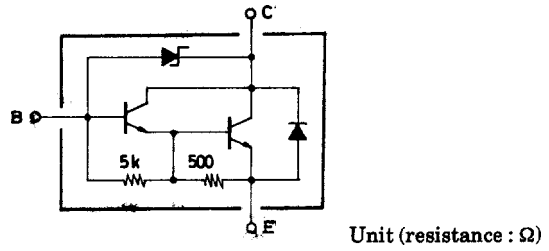


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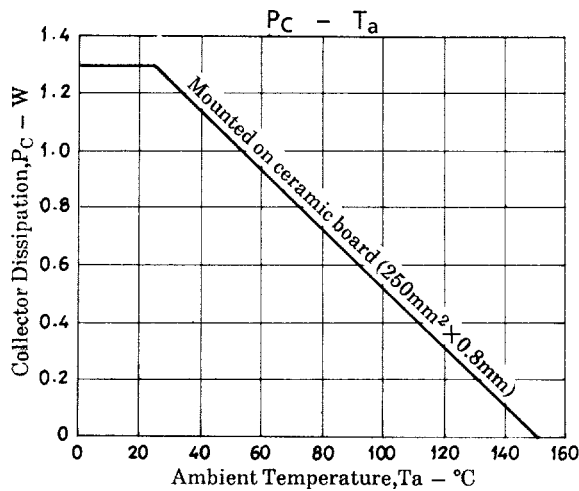
## Es/b Test Circuit



## Electrical Connection



## 2SD2176



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