

DARLINGTON POWER TRANSISTOR 2SA1841

PNP SILICON EPITAXIAL TRANSISTOR (DARLINGTON CONNECTION) FOR HIGH-SPEED SWITCHING

DESCRIPTION

The 2SA1841 is a high-speed Darlington power transistor.

This transistor is ideal for high-precision control such as PWM control for pulse motors brushless motors in OA and FA equipment. In addition, this transistor features a package that can be automounted in radial taping specifications, thus contributing to mounting cost reduction.

★ ORDERING INFORMATION

PART NUMBER	PACKAGE
2SA1841	MP-10

FEATURES

- Auto-mounting possible in radial taping specifications
- Resin-molded insulation type package with power rating of 1.8 W in stand-alone conditions
- High DC current amplifiers due to Darlington connection
 hFE = 4000 to 20000 (VCE = -2.0 V, Ic = -4.0 A)
- On-chip C-to-E reverse diode
- · Fast switching speed

ABSOLUTE MAXIMUM RATINGS (TA = 25°C)

Collector to Base Voltage	Vсво	-100	V
Collector to Emitter Voltage	Vceo	-100	V
Emitter to Base Voltage	VEBO	-8.0	V
Collector Current (DC)	Ic(DC)	-8.0	Α
Collector Current (pulse)	I _{C(pulse)} Note	-16	Α
Base Current (DC)	I _{B(DC)}	-0.8	Α
Total Power Dissipation (T _A = 25°C)	Рт	1.8	W
Junction Temperature	Tj	150	°C
Storage Temperature	Tstg	-55 to +150	°C

Note PW \leq 10 ms, Duty Cycle \leq 2%

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ELECTRICAL CHARACTERISTICS (TA = 25°C)

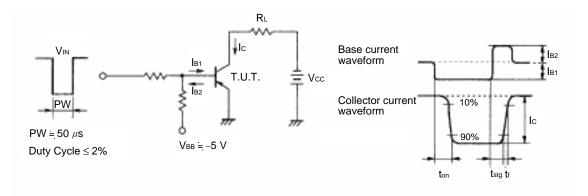
CHARACTERISTICS	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	Ісво	V _{CB} = -100 V, I _E = 0 A			-1.0	μΑ
Emitter Cut-off Current	ІЕВО	V _{EB} = -5.0 V, I _C = 0 A			-5.0	mA
DC Current Gain Note	h _{FE1}	Vce = -2.0 V, Ic = -4.0 A	4000		20000	
	h _{FE2}	V _{CE} = -2.0 V, I _C = -8.0 A	500			
Collector Saturation Voltage Note	V _{CE(sat)}	Ic = -4.0 A, I _B = -4.0 mA			-1.5	V
Base Saturation Voltage Note	V _{BE(sat)}	Ic = -4.0 A, I _B = -4.0 mA			-2.0	V
Turn-on Time	ton	Ic = -4.0 A		0.2		μs
Storage Time	t stg	$I_{B1} = -I_{B2} = -4.0 \text{ mA}$		1.5		μs
Fall Time	tf	R _L = 12.5 Ω, Vcc = −50 V		0.7		μs

Note Pulsed test PW \leq 350 ms, Duty Cycle \leq 2%

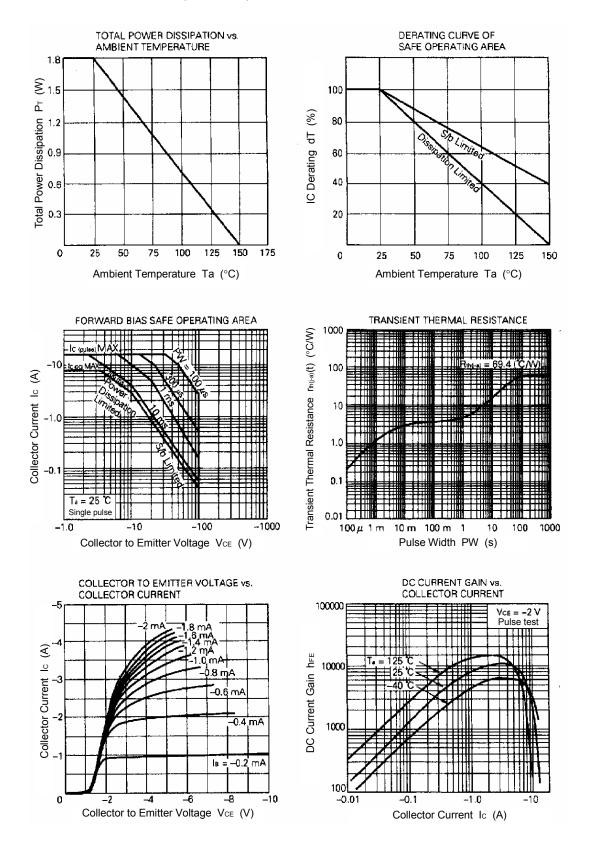
★ hfe CLASSIFICATION

Marking	L	К
h _{FE1}	4000 to 10000	8000 to 20000

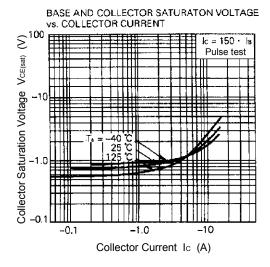
SWITCHING TIME (ton, tstg, tf) TEST CIRCUIT

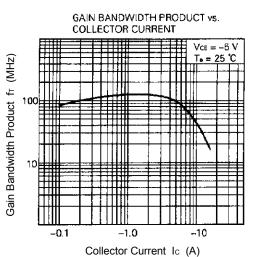


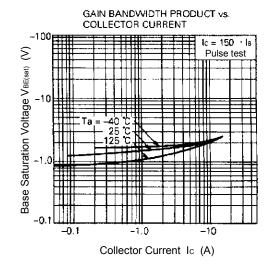
TYPICAL CHARACTERISTICS (TA = 25°C)

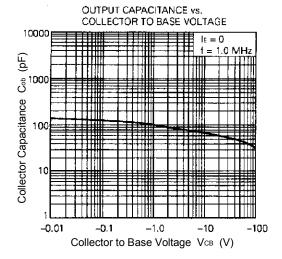


Data Sheet D15590EJ3V0DS 3





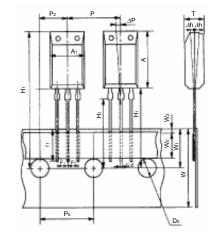




★ PACKAGE DRAWING (Unit: mm)

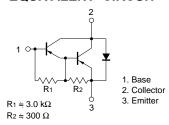
MP-10 4.5 ±0.2 8.0 ±0.2 0 0 13.0 ± 0.2 2.5 ±0.2 1.4 ±0.2 1.4 ±0.2 0.5 ± 0.1 0.5 ±0.1 0.5 ±0.1 1: Base 2: Collector 2.5 TYP. 2.5 TYP. 3: Emitter

TAPING SPECIFICATION



A ₁ A D ₀ d F ₁ F ₂ H H ₀ H ₁ Δh ℓ ₁ P P ₂ ΔP T	8.0 ± 0.2 13.0 ± 0.2 $\phi 4.0 \pm 0.2$ 0.5 ± 0.1 $2.5^{+0.4}_{-0.1}$ $2.5^{+0.4}_{-0.1}$ 20.0 MAX. 16.0 ± 0.5 32.2 MAX. 0 ± 1.0 2.5 MIN. 12.7 ± 1.0 12.7 ± 0.3 6.35 ± 0.5 0 ± 1.3 4.5 ± 0.2
<i>l</i> 1	2.5 MIN.
Pο	12.7 ± 0.3
P_2	6.35 ± 0.5
∆P	0 ± 1.3
Т	
W	18.0 ^{+1.0} _{-0.5}
W_0	5.0 MIN.
W ₁	9.0 ± 0.5
W ₂	0.7 MIN.

EQUIVALENT CIRCUIT



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