

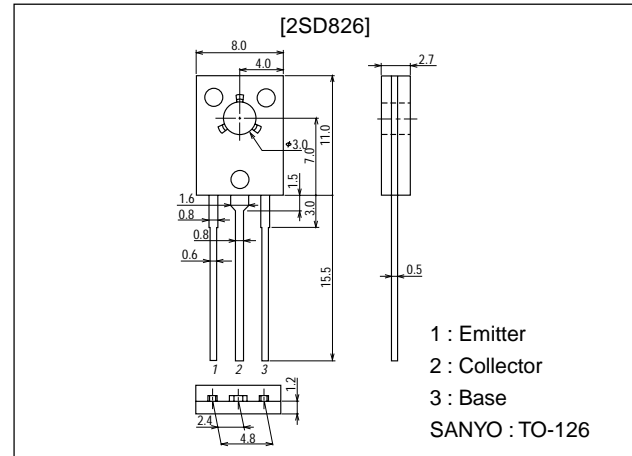
**2SD826****20V/5A Switching Applications****Features**

- Low saturation voltage.
- High h_{FE} .
- Large current capacity.

Package Dimensions

unit:mm

2009A

**Specifications****Absolute Maximum Ratings at $T_a = 25^\circ\text{C}$**

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CB0}		60	V
Collector-to-Emitter Voltage	V_{CE0}		20	V
Emitter-to-Base Voltage	V_{EBO}		6	V
Collector Current	I_C		5	A
Collector Current (Pulse)	I_{CP}	100ms, 1 pulse	8	A
Collector Dissipation	P_C		1.0	W
		$T_c=25^\circ\text{C}$	10	W
Junction Temperature	T_J		150	$^\circ\text{C}$
Storage Temperature	T_{stg}		-55 to +150	$^\circ\text{C}$

Electrical Characteristics at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	$V_{CB}=50\text{V}, I_E=0$			1.0	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=5\text{V}, I_C=0$			1.0	μA
DC Current Gain	h_{FE1}	$V_{CE}=2\text{V}, I_C=0.5\text{A}$	120*		560*	
	h_{FE2}	$V_{CE}=2\text{V}, I_C=3\text{A (Pulse)}$	95			
Gain-Bandwidth Product	f_T	$V_{CE}=10\text{V}, I_C=50\text{mA}$		120		MHz
Output Capacitance	C_{ob}	$V_{CB}=10\text{V}, f=1\text{MHz}$		45		pF

* : The 2SD826 is classified by 0.5A h_{FE} as follows.

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120	E	200	160	F	320	280	G	560
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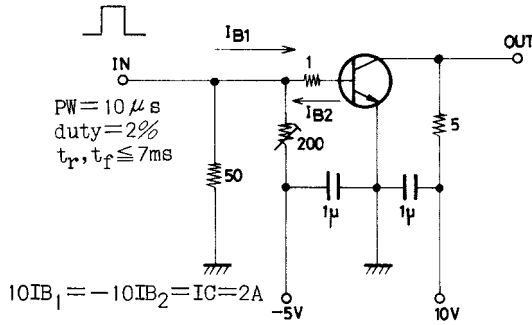
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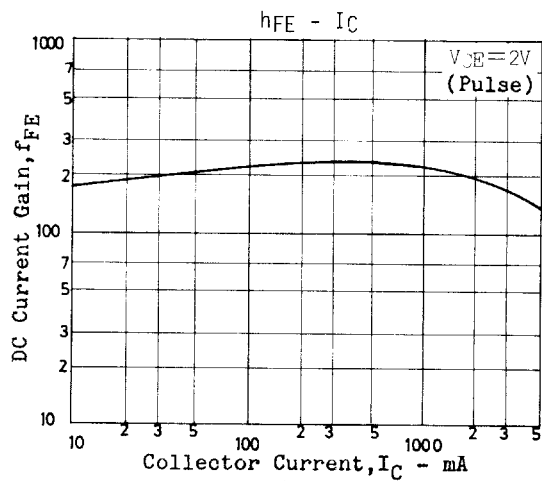
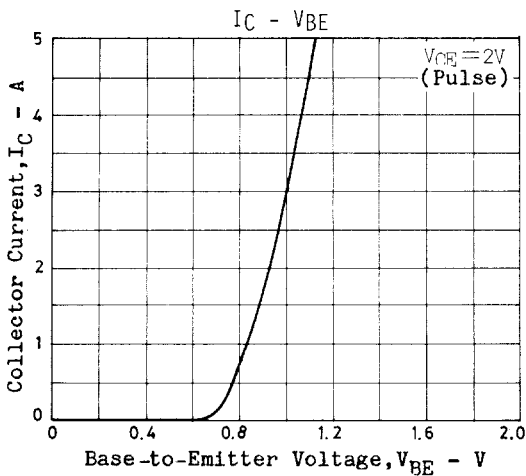
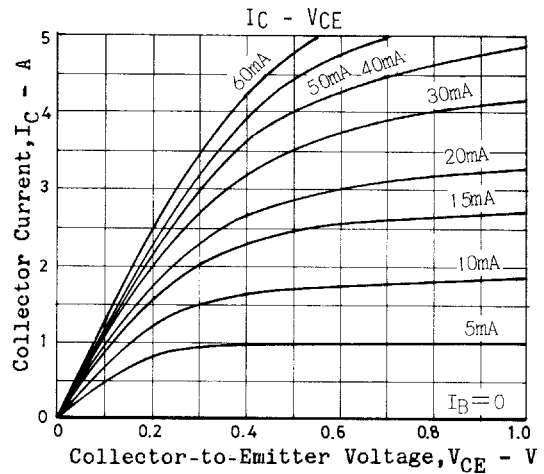
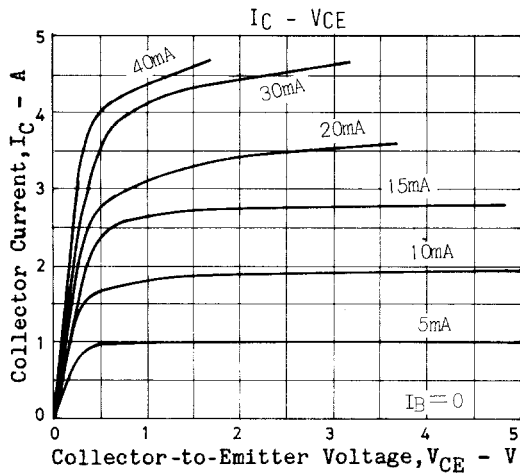
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=3A, I_B=60mA$ (Pulse)			0.5	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=3A, I_B=60mA$ (Pulse)			1.5	V
Turn-ON Time	t_{on}	See specified test circuit.		30		ns
Storage Time	t_{stg}	See specified test circuit.		300		ns
Fall Time	t_f	See specified test circuit.		40		ns

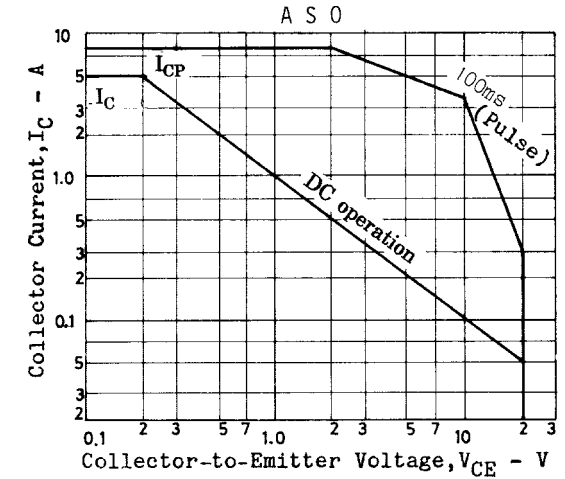
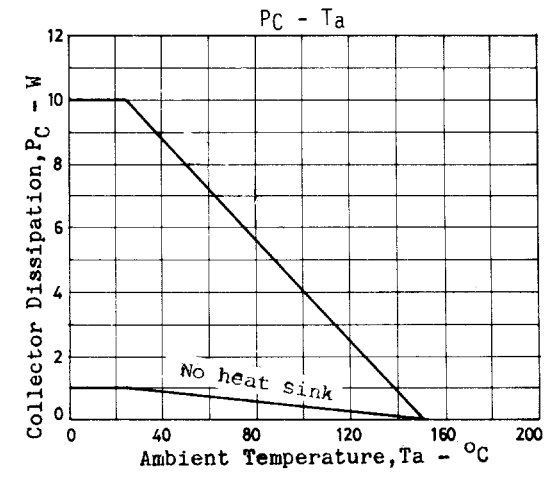
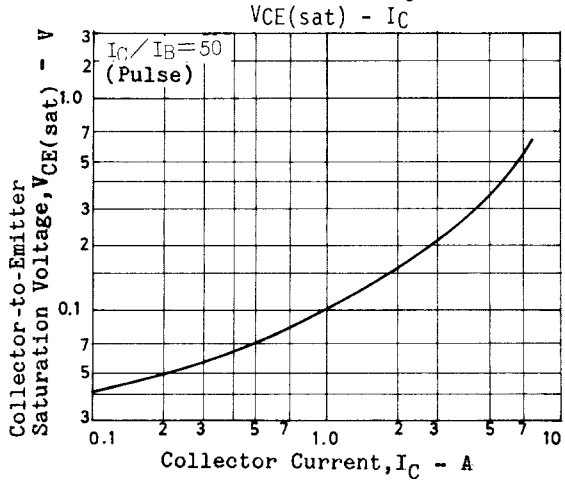
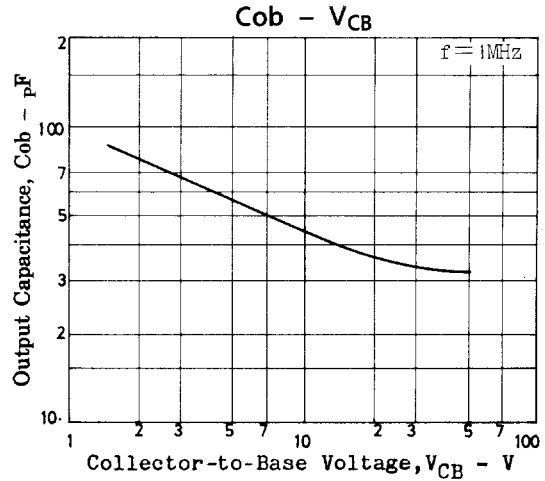
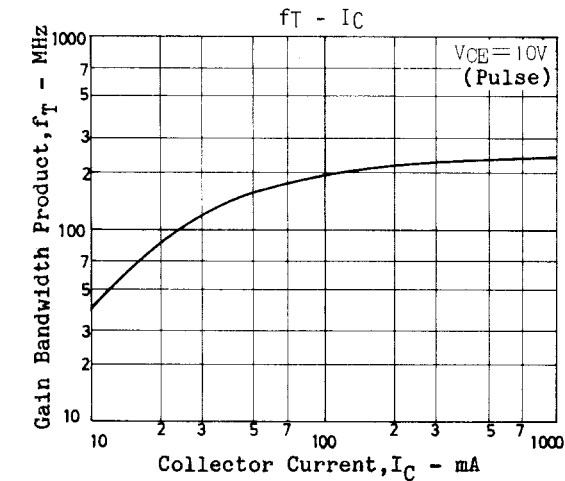
Switching Time Test Circuit



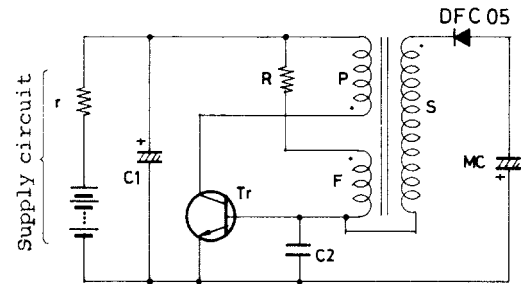
Unit (resistance : Ω , capacitance : F)



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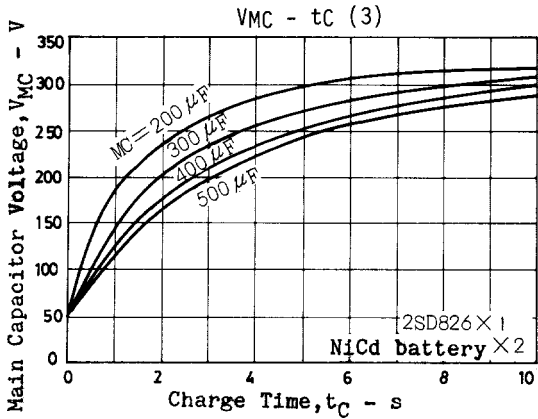
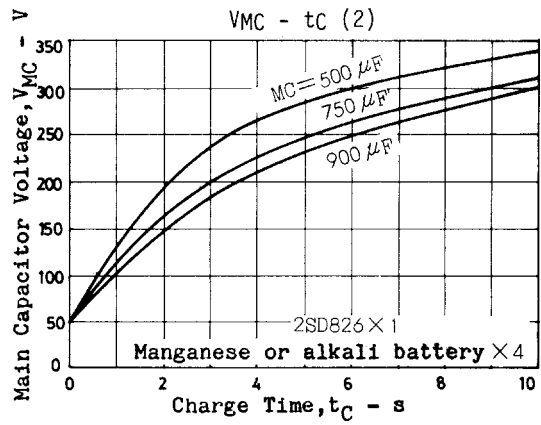
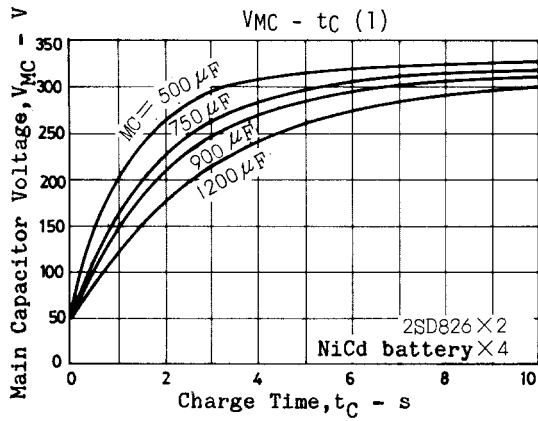


Sample Application Circuit 1 : Electronic flash set

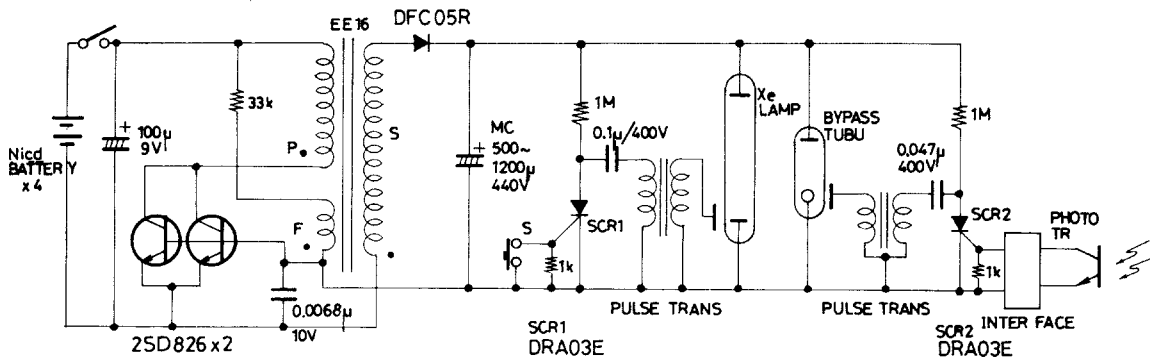


	E[V]	r[Ω]	MC[μF]	C1[μF]	R[kΩ]	C2[μF]	Tr	P	F	S	Core
NiCd ×2	2.7	0.15	to 500	100	2.2	0.01	2SD826 FG	0.55ø× 10 ³ / ₄ T	0.23ø× 12 ³ / ₄ T	0.07ø× 1350T	EE13
Alkali or manganese ×4	6.0	1.2	500 to 900	100	4.7	0.015	2SD826 EFG	0.6ø× 22 ³ / ₄ T	0.23ø× 20 ³ / ₄ T	0.08ø× 1390T	EE16
NiCd ×4	5.4	0.3	500 to 1200	100	33	0.0068	2SD826 EF×2	0.6ø× 22 ³ / ₄ T	0.23ø× 20 ³ / ₄ T	0.08ø× 1390T	EE16

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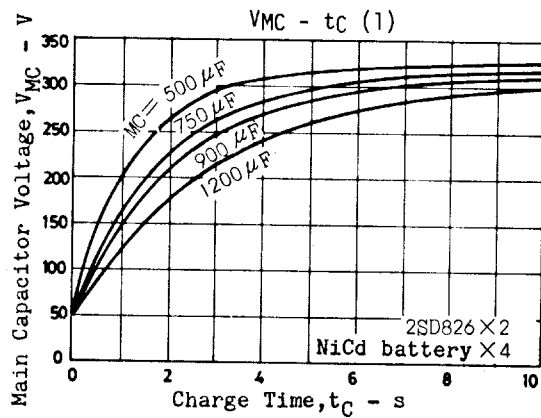
Sample Application Circuit 2 : High-grade electronic flash set



DC/DC CONVERTER TRANS

- P: 0.6 ϕ 22 ³/₄T
- F: 0.23 ϕ 20 ³/₄T
- S: 0.08 ϕ 1390T
- CORE: EE16

Unit (resistance : Ω , capacitance : F)



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