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**DATA SHEET****2SD826** — NPN Epitaxial Planar Silicon Transistor  
**20V / 5A, Transistor for Flash Circuit****Features**

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

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

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	$V_{CBO}$		60	V
Collector-to-Emitter Voltage	$V_{CEO}$		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	$I_{CBO}$	$V_{CB}=50\text{V}, I_E=0\text{A}$			1.0	$\mu\text{A}$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB}=5\text{V}, I_C=0\text{A}$			1.0	$\mu\text{A}$
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			

Continued on next page.

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

Rank	E	F	G
$h_{FE}$	120 to 200	160 to 320	280 to 560

# 2SD826

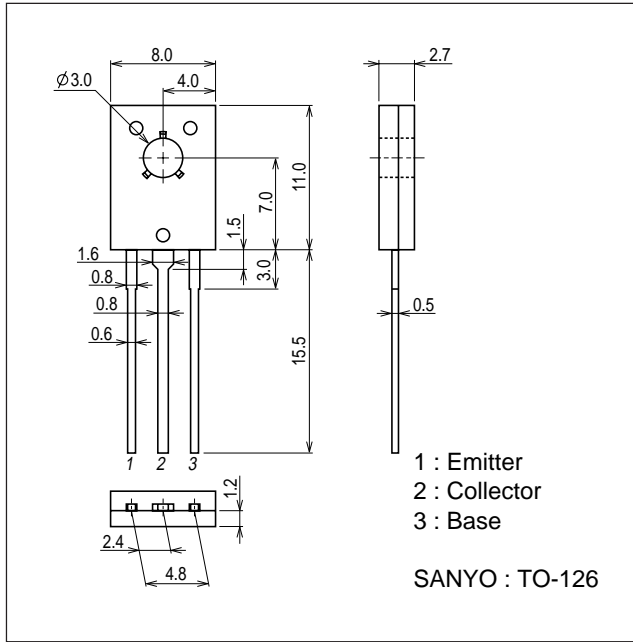
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Gain-Bandwidth Product	$f_T$	$V_{CE}=10V, I_C=50mA$		120		MHz
Output Capacitance	$C_{ob}$	$V_{CB}=10V, f=1MHz$		45		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=3A, I_B=60mA$ (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
Fall Time	$t_f$	See specified Test Circuit.		40		ns
Storage Time	$t_{stg}$	See specified Test Circuit.		300		ns

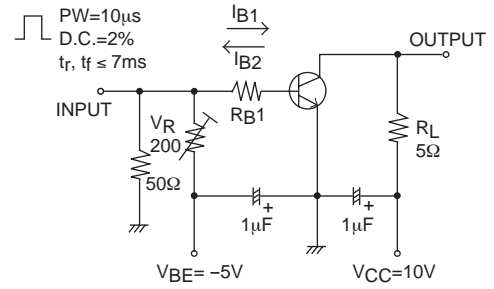
## Package Dimensions

unit : mm (typ)

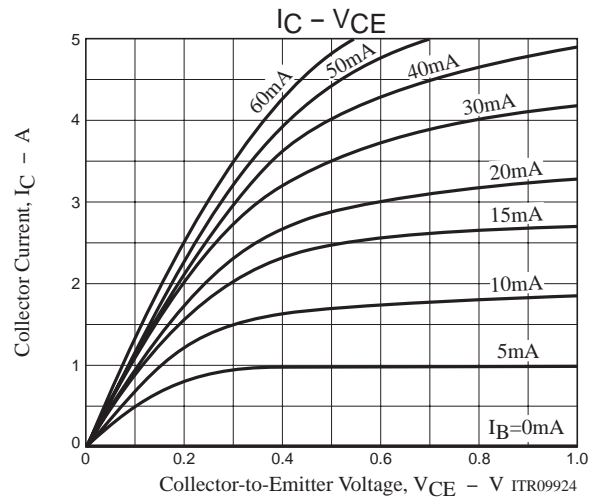
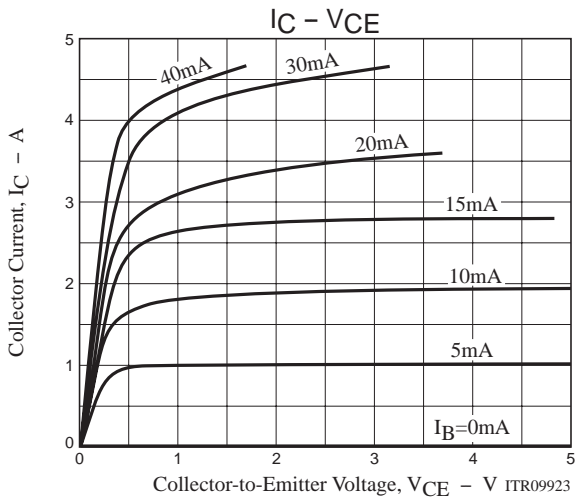
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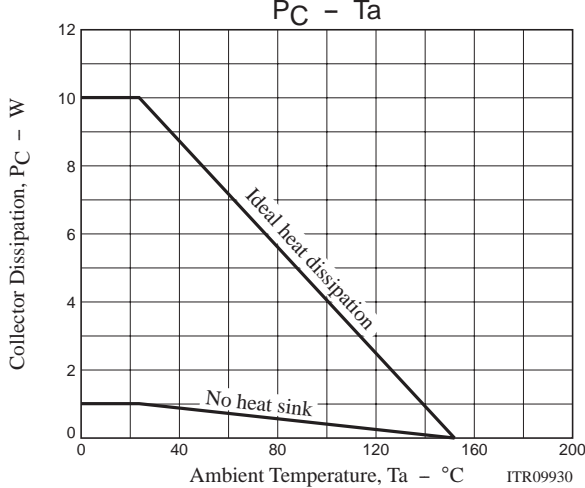
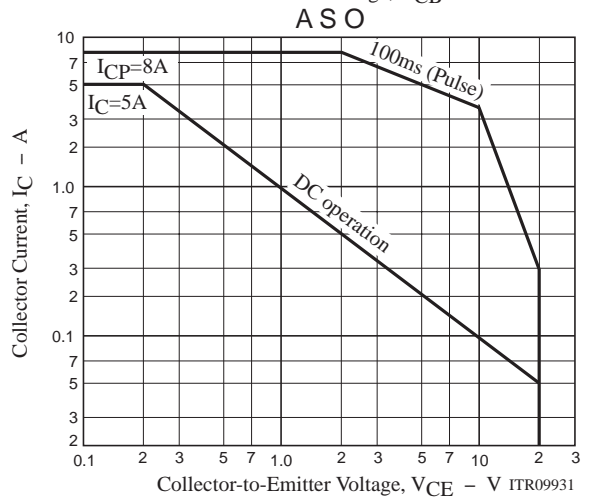
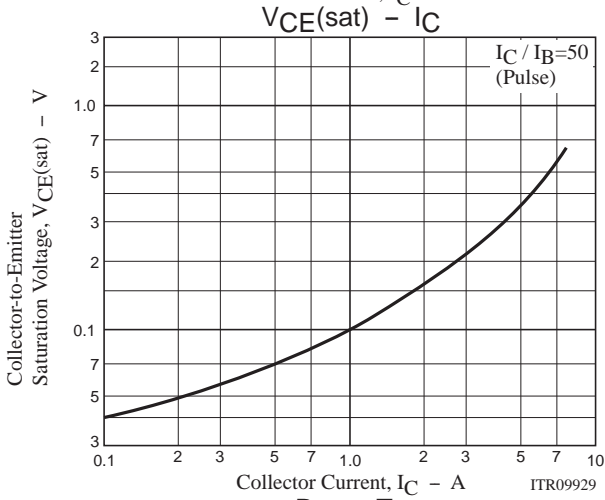
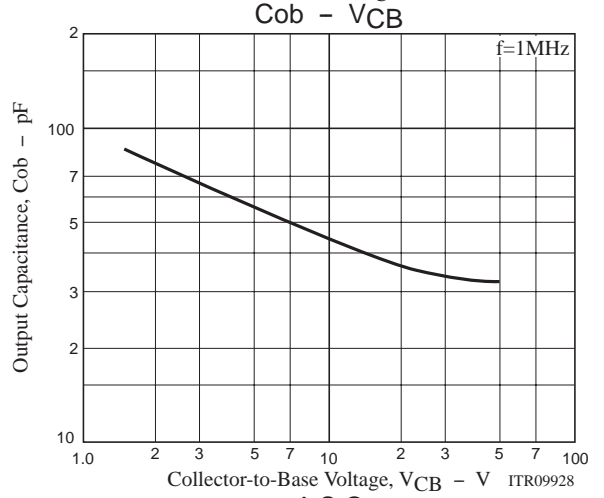
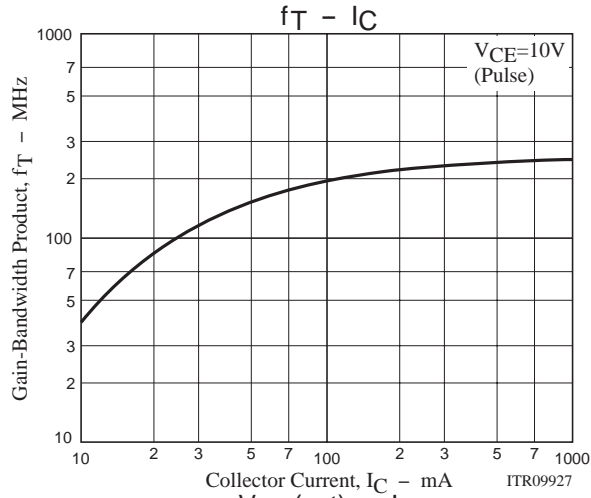
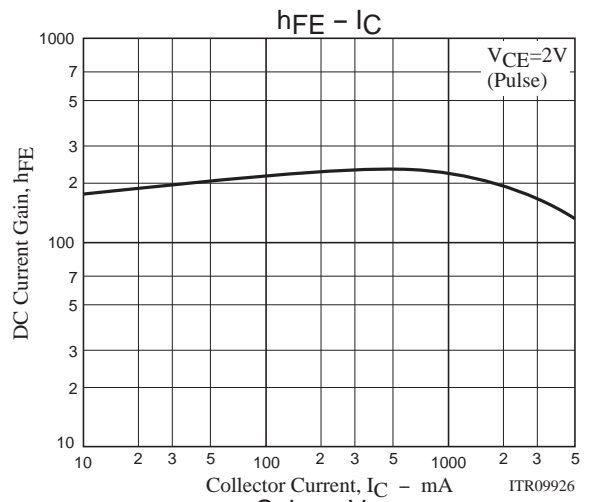
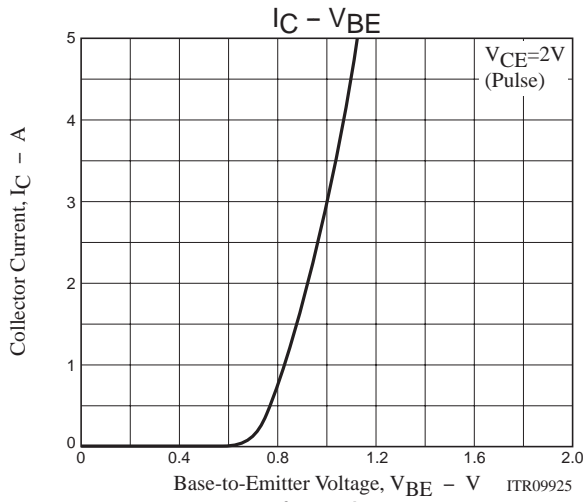


## Switching Time Test Circuit

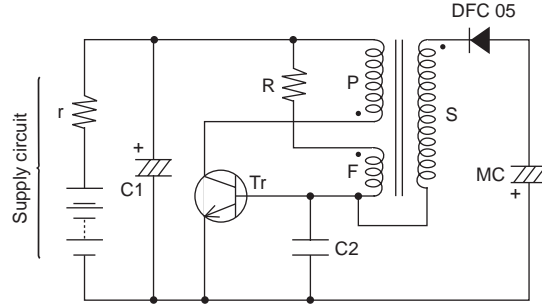


$$I_C = 10I_{B1} = -10I_{B2} = 2A$$



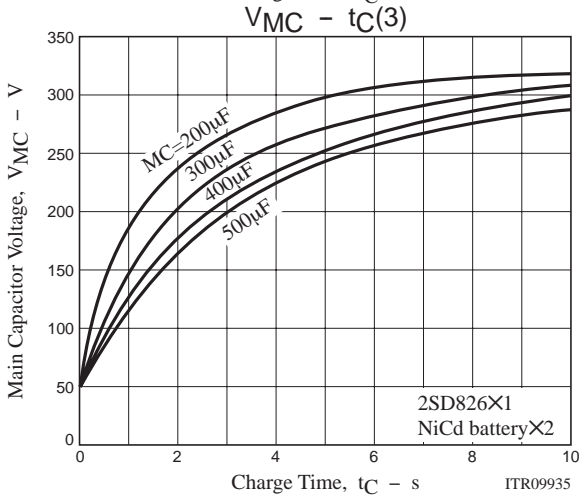
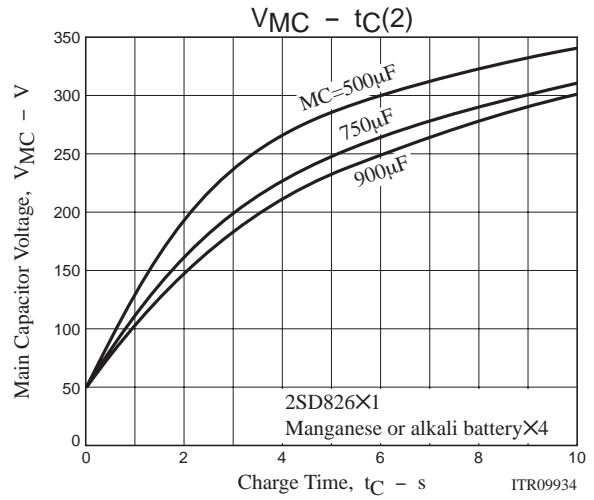
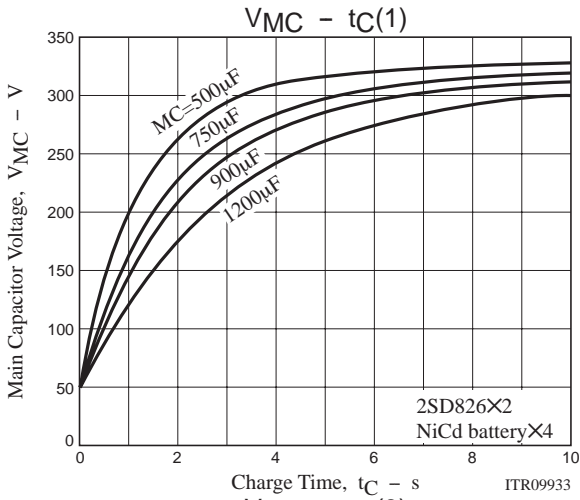


Sample Application Circuit 1 : Electronic flash set

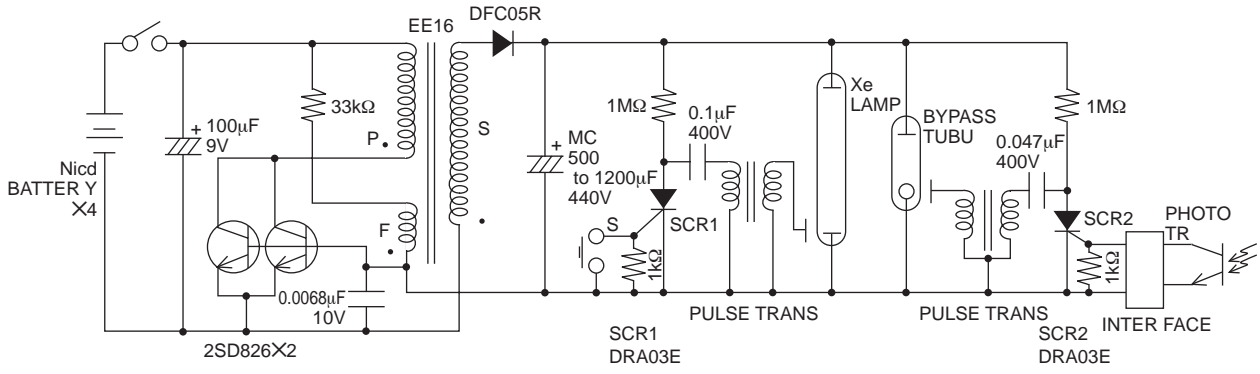


ITR09932

	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	0.55φ× 10 3/4T	0.23φ× 12 3/4T	0.07φ× 1350T	EE13
Alkali or manganese ×4	6.0	1.2	500 to 900	100	4.7	0.015	2SD826 EFG	0.6φ× 22 3/4T	0.23φ× 20 3/4T	0.08φ× 1390T	EE16
NiCd×4	5.4	0.3	500 to 1200	100	33	0.0068	2SD826 EFX2	0.6φ× 22 3/4T	0.23φ× 20 3/4T	0.08φ× 1390T	EE16

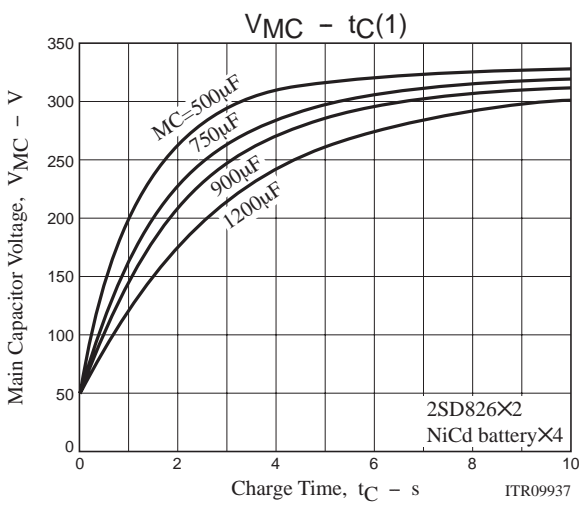


Sample Application Circuit 2 : High-grade electronic flash set



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

ITR09936



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