M59C

Silicon Controlled Switch

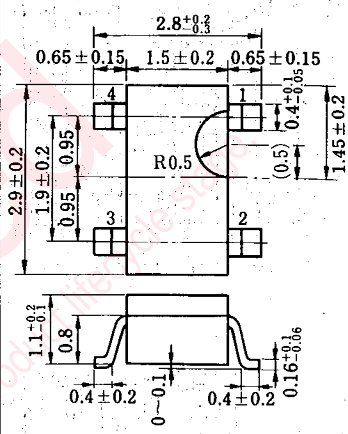
Driver for Numerical Indicator Tube Switching

■ Features

- Selective breakover voltage
- Low On-voltage

■ Package Dimensions

Unit: mm



MINI Type Package (4-pin)

pin	①NPN Part	②PNP Part	③ Integrated Element
1	Collector	Base	AG
2	——	Emitter	A
3	Emitter	——	K
4	Base	Collector	AG

■ Absolute Maximum Ratings ($T_a=25°C$)

Item	Symbol	Value		Unit
		PNP	NPN	
Collector-Base Voltage	V_{CBO}	−70	70	V
Collector-Emitter Voltage	V_{CER} *1		70	V
Collector-Emitter Voltage	V_{CEO}	−70		V
Emitter-Base Voltage	V_{EBO}	−70	5	V
Emitter Current	I_E	100	−100	mA
Peak Emitter Current	I_{EM} *2	500	−500	mA
Collector Current	I_C		50	mA
Peak Collector Current	I_{CM}		100	mA
Power Dissipation	P_D	200		mW
Junction Temperature	T_j	150		℃
Storage Temperature	T_{stg}	−55~+150		℃

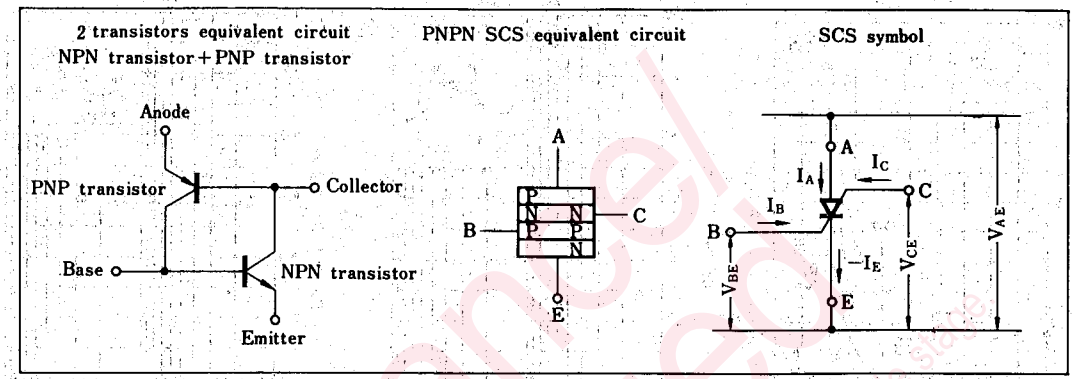
*1 $R_{BE}=10\ k\Omega$ *2 $t_w<1$ ms, $\delta=0.05$

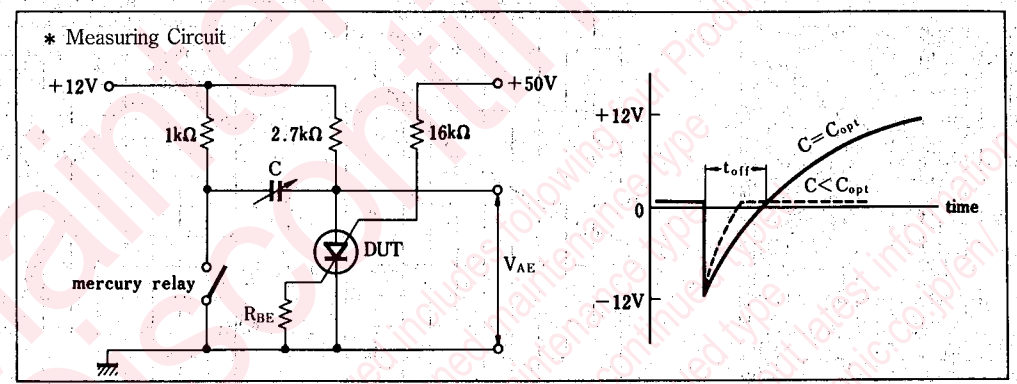
■ Electrical Characteristics ($T_a=25°C$)

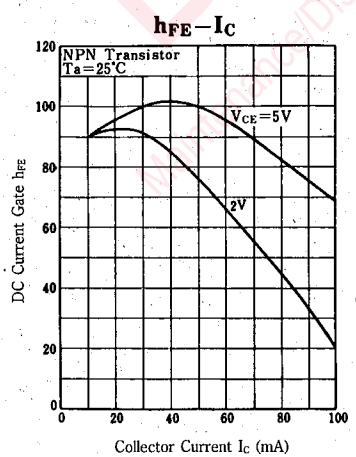
Item	Symbol	Condition	min.	typ.	max.	Unit
(NPN transistor)						
Collector Cutoff Current	I_{CER}	$V_{CE}=70$ V, $R_{BE}=10\ k\Omega$		10	100	nA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=5$ V, $I_C=0$		30	1000	nA
DC Current Gain	h_{FE}	$V_{CE}=2$ V, $I_C=10$ mA	50	180		
(PNP Transistor)						
Emitter Cutoff Current	I_{EBO}	$V_{EB}=-70$ V, $I_C=0$		−0.05	−100	nA
DC Current Gain	h_{FE}*	$V_{CB}=0$, $I_E=1$ mA	0.19	1.1	2.5	
(Coupling Characteristics)						
Forward Voltage	V_{AE}	$I_A=50$ mA, $I_C=0$, $R_{BE}=10\ k\Omega$		1.05	1.4	V
Holding Current (DC)	I_H	$R_{BE}=10\ k\Omega$, $I_C=10$ mA, $V_{BB}=-2$ V	0.1	0.5	1	mA
Turn-off Time	t_{off}	$R_{BE}=10\ k\Omega$ *2		11	20	μs

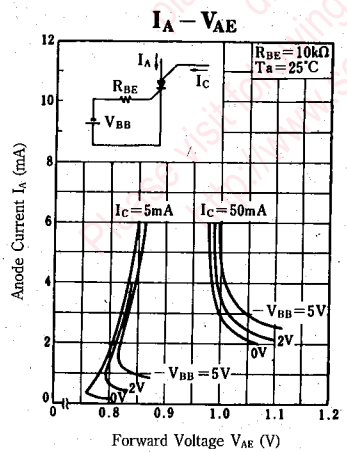
*2 t_{rr} measuring ciruict

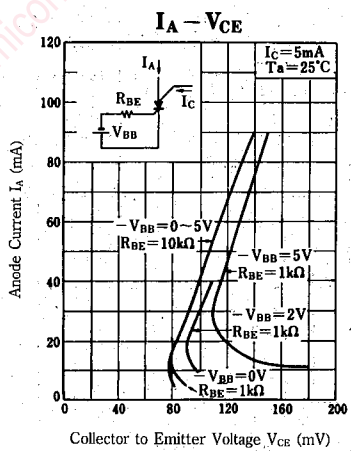
Class	P	Q
h_{FE}(PNP)	0.19~1.2	0.72~2.5



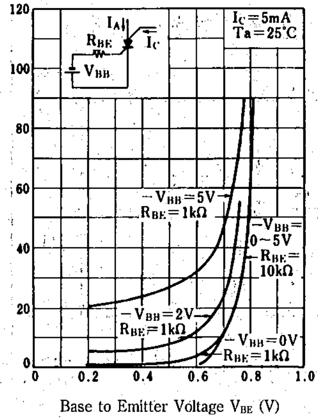




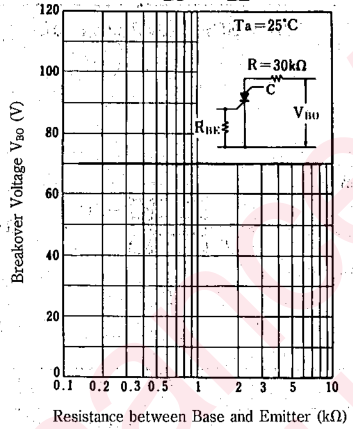




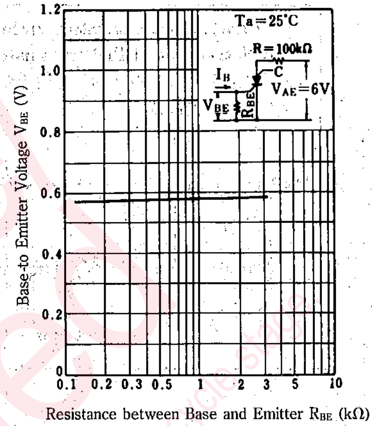
$I_A - V_{BE}$



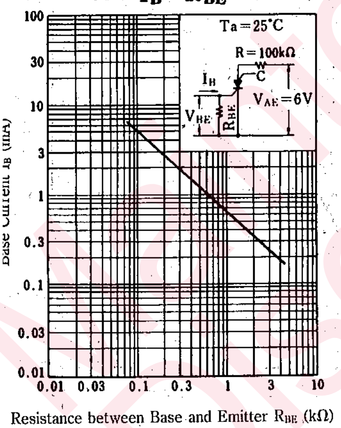
$V_{BO} - R_{BE}$



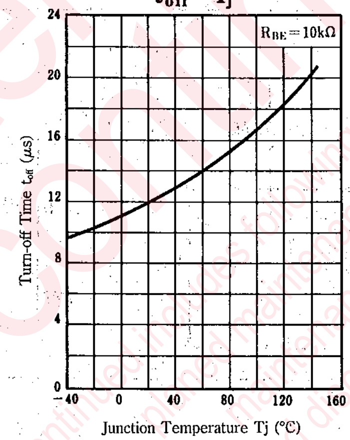
$V_{BE} - R_{BE}$



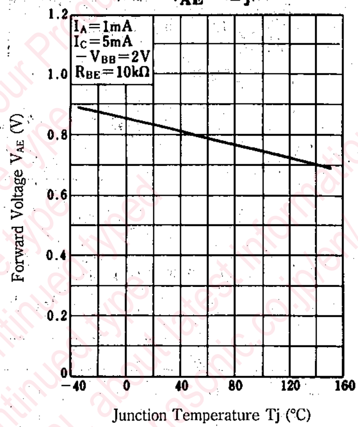
$I_B - R_{BE}$



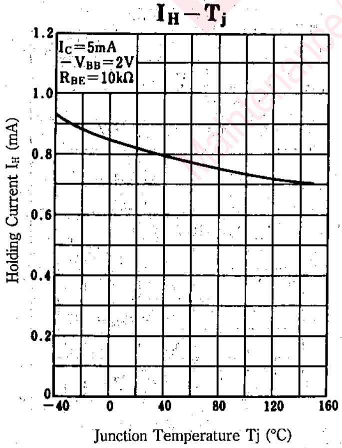
$t_{off} - T_j$



$V_{AE} - T_j$



$I_H - T_j$



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