

# 13003

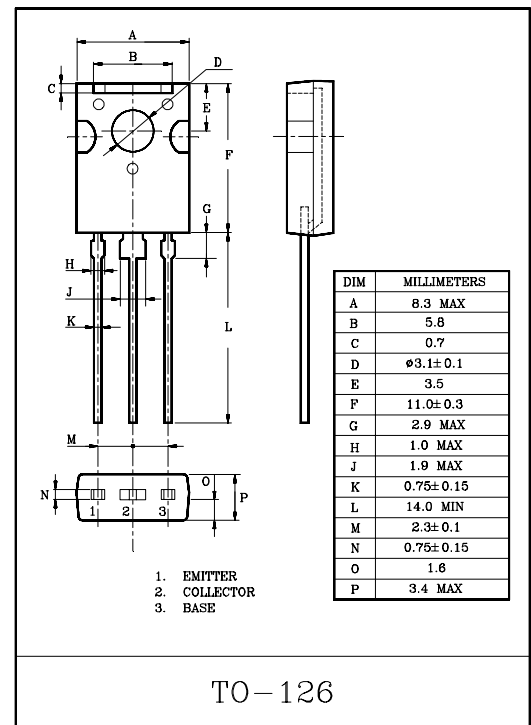
SWITCHING REGULATOR APPLICATION.  
HIGH VOLTAGE AND HIGH SPEED  
SWITCHING APPLICATION.

## FEATURES

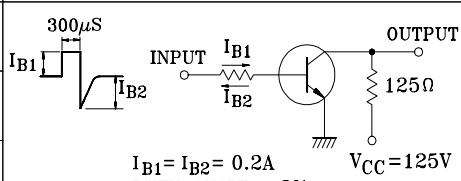
- Excellent Switching Times  
:  $t_{on}=1.1\mu S(\text{Max.})$ ,  $t_f=0.7\mu S(\text{Max.})$ , at  $I_C=1A$
- High Collector Voltage :  $V_{CBO}=700V$ .

## MAXIMUM RATINGS ( $T_a=25^\circ C$ )

CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector-Base Voltage		$V_{CBO}$	700	V
Collector-Emitter Voltage		$V_{CEO}$	400	V
Emitter-Base Voltage		$V_{EBO}$	9	V
Collector Current	DC	$I_C$	1.5	A
	Pulse	$I_{CP}$	3	
Base Current		$I_B$	0.75	A
Collector Power Dissipation ( $T_c=25^\circ C$ )		$P_C$	20	W
Junction Temperature		$T_j$	150	$^\circ C$
Storage Temperature Range		$T_{stg}$	-65~150	$^\circ C$

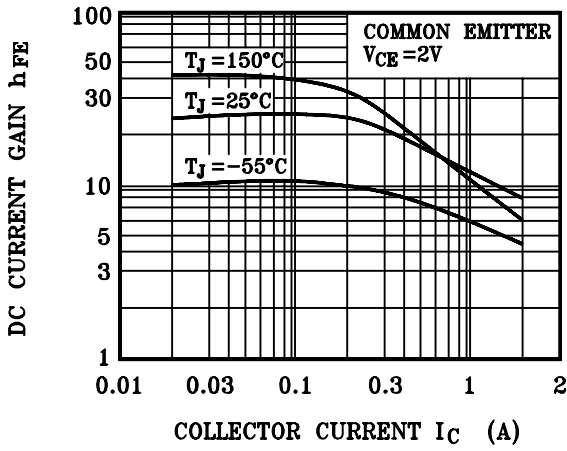


## ELECTRICAL CHARACTERISTICS ( $T_a=25^\circ C$ )

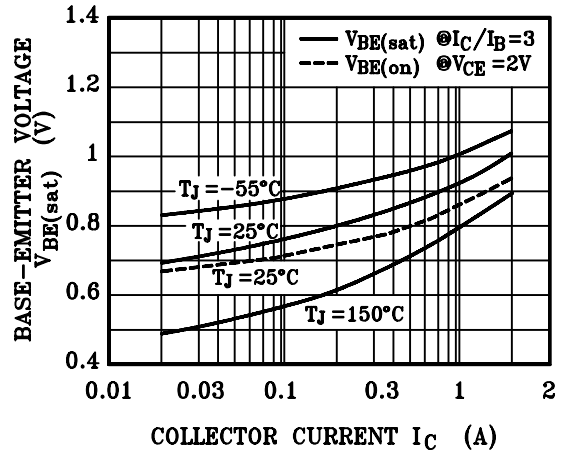
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Emitter Cut-off Current	$I_{EBO}$	$V_{EB}=9V$ , $I_C=0$	-	-	10	$\mu A$
DC Current Gain	$h_{FE(1)}$ Note	$V_{CE}=2V$ , $I_C=0.5A$	19	-	36	
	$h_{FE(2)}$	$V_{CE}=2V$ , $I_C=1A$	5	-	25	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=0.5A$ , $I_B=0.1A$	-	-	0.5	V
		$I_C=1A$ , $I_B=0.25A$	-	-	1	
		$I_C=1.5A$ , $I_B=0.5A$	-	-	3	
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=0.5A$ , $I_B=0.1A$	-	-	1	V
		$I_C=1A$ , $I_B=0.25A$	-	-	1.2	
Collector Output Capacitance	$C_{ob}$	$V_{CB}=10V$ , $f=0.1MHz$	-	21	-	pF
Transition Frequency	$f_T$	$V_{CE}=10V$ , $I_C=0.1A$	4	-	-	MHz
Turn-On Time	$t_{on}$	 <p><math>I_{B1}=I_{B2}=0.2A</math> DUTY CYCLE <math>\leq 2\%</math></p>	-	-	1.1	$\mu S$
Storage Time	$t_{stg}$		-	-	4.0	$\mu S$
Fall Time	$t_f$		-	-	0.7	$\mu S$

Note :  $h_{FE(1)}$  Classification : O:19~28 , Y:26~36

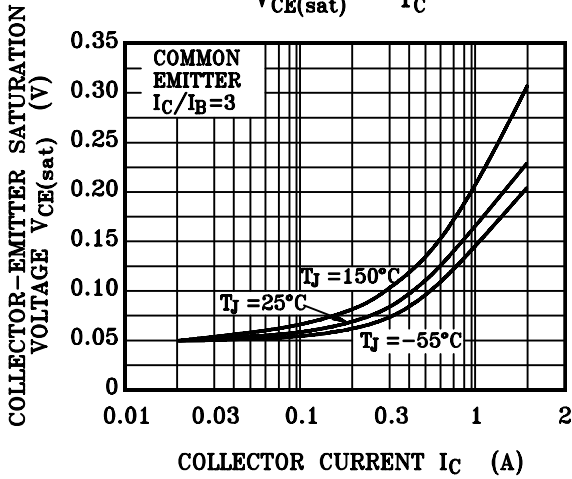
### DC CURRENT GAIN



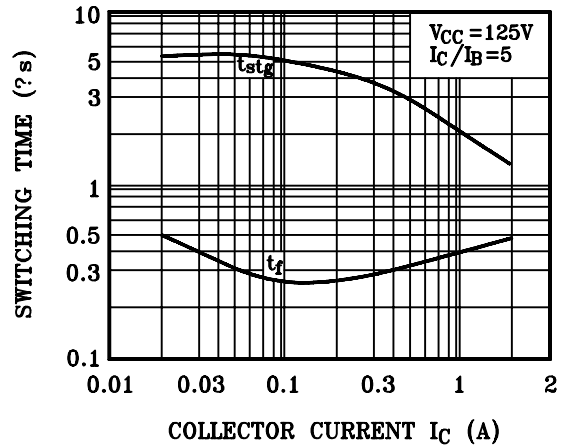
### $V_{BE(sat)} - I_C$



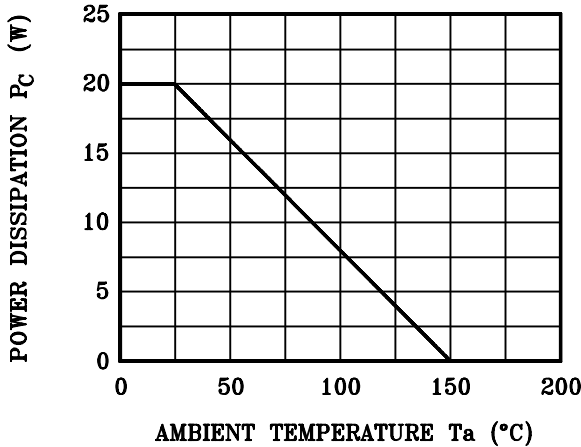
### $V_{CE(sat)} - I_C$



### SWITCHING CHARACTERISTIC



### $P_c - T_a$



### SAFE OPERATING AREA

