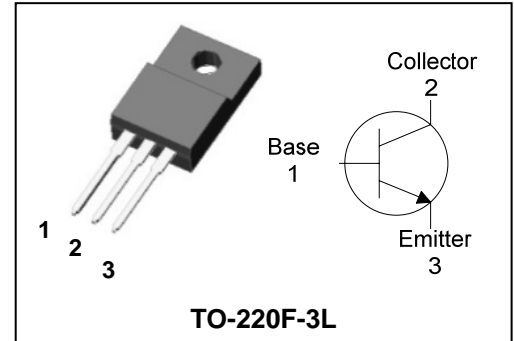


Features

- Low saturation switching application
- Power amplifier
- High Voltage : $V_{CEO}=80V$ Min.
- Complement to STB1017PI

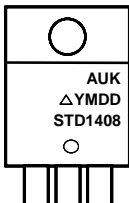
PIN Connection



Ordering Information

Type NO.	Marking	Package Code
STD1408PI	STD1408	TO-220F-3L

Marking Diagram

	<p>Column 1 : Manufacturer</p> <p>Column 2 : Production Information - Δ : Factory Management Code - YMDD : Date Code (Year, Month, Date)</p> <p>Column 3 : Device Code</p>
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Absolute maximum ratings

Characteristic	Symbol	Rating	Unit
Collector-Base voltage	V_{CBO}	80	V
Collector-Emitter voltage	V_{CEO}	80	V
Emitter-base voltage	V_{EBO}	5	V
Collector current	I_C	4	A
	I_{CP}^*	8	A(Pulse)
Collector Power dissipation ($T_c=25^\circ C$)	P_C	15	W
Junction temperature	T_j	150	$^\circ C$
Storage temperature	T_{stg}	-55 ~ 150	$^\circ C$

* : Single pulse, $t_p=300 \mu s$

Characteristic		Symbol	Typ.	Max	Unit
Thermal resistance	Junction-case	$R_{th(J-C)}$	-	8.33	$^\circ C/W$
	Junction-ambient	$R_{th(J-a)}$	-	62.5	

Electrical Characteristics

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Collector cut-off current	I_{CBO}	$V_{CB}=80V, I_E=0$	-	-	10	μA
Emitter cut-off current	I_{EBO}	$V_{EB}=5V, I_C=0$	-	-	10	μA
Collector-Emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=50mA, I_B=0$	80	-	-	V
DC current gain	h_{FE}	$V_{CE}=5V, I_C=0.5A$	120	-	240	-
		$V_{CE}=5V, I_C=3A$	40	-	-	-
Collector-Emitter saturation voltage	$V_{CE(sat)}$	$I_C=3A, I_B=0.3A$	-	0.45	1.5	V
Base-Emitter saturation voltage	$V_{BE(on)}$	$V_{CE}=5V, I_B=3A$	-	1.0	1.5	V
Transition frequency	f_T	$V_{CB}=5V, I_C=0.5A$	-	8	-	MHz
Collector output capacitance	C_{ob}	$V_{CB}=10V, I_E=0, f=1MHz$	-	40	-	pF

* hFE rank : 120~240 Only

Electrical Characteristic Curves

Fig. 1 $P_C - T_a$

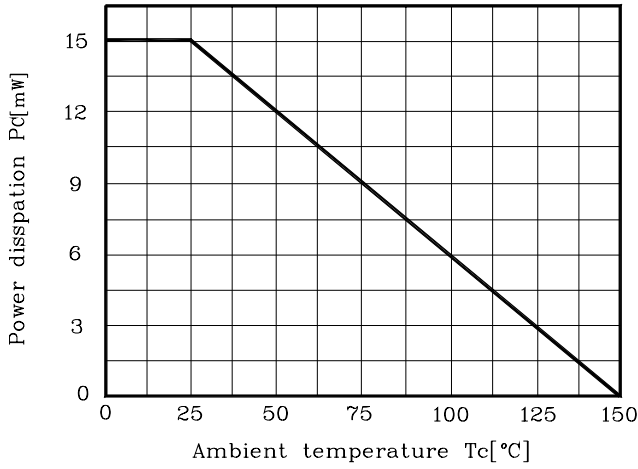


Fig. 2 $I_C - V_{BE}$

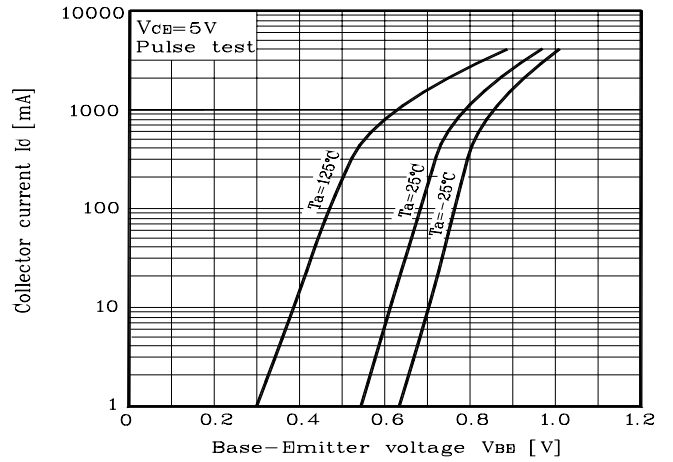


Fig. 3 $I_C - V_{CE}$

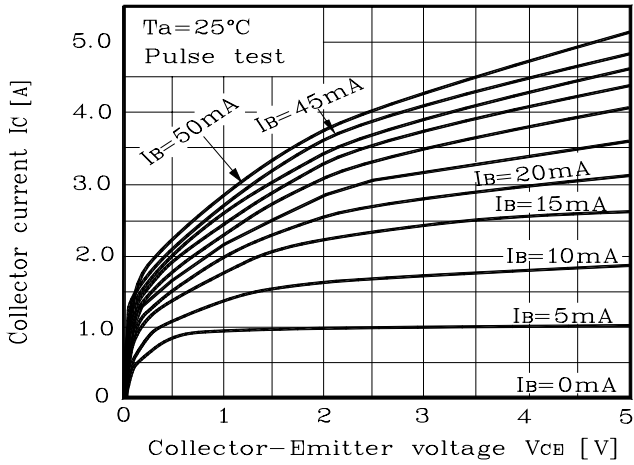


Fig. 4 $h_{FE} - I_C$

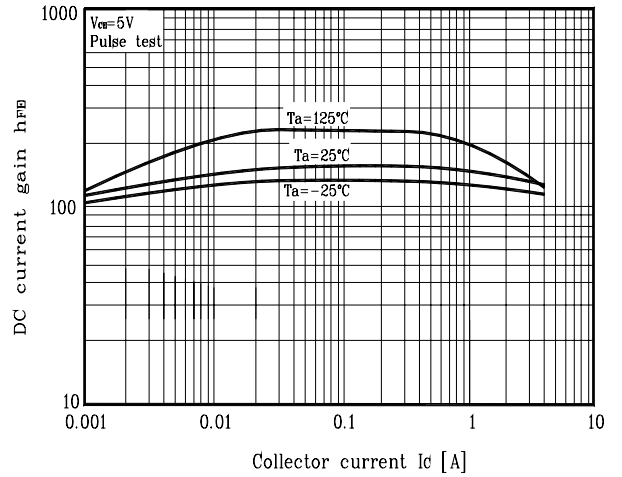


Fig. 5 $V_{CE(sat)} - I_C$

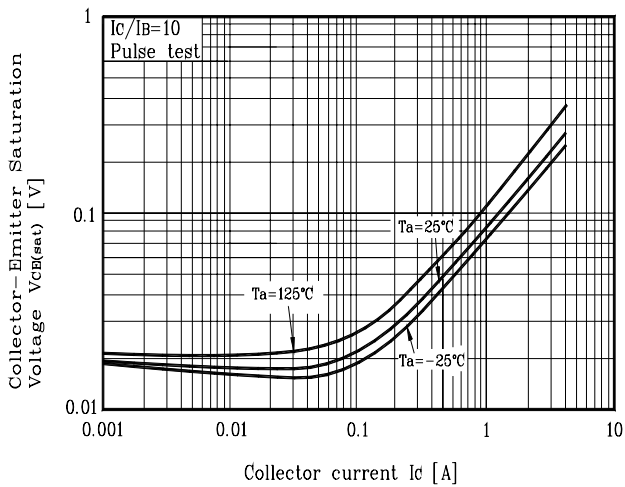
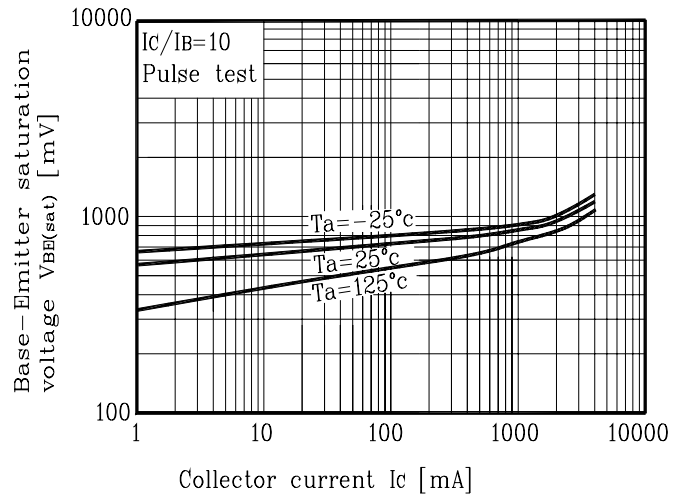


Fig. 6 $V_{BE(sat)} - I_C$



Electrical Characteristic Curves

Fig. 7 Cob - V_{CB}

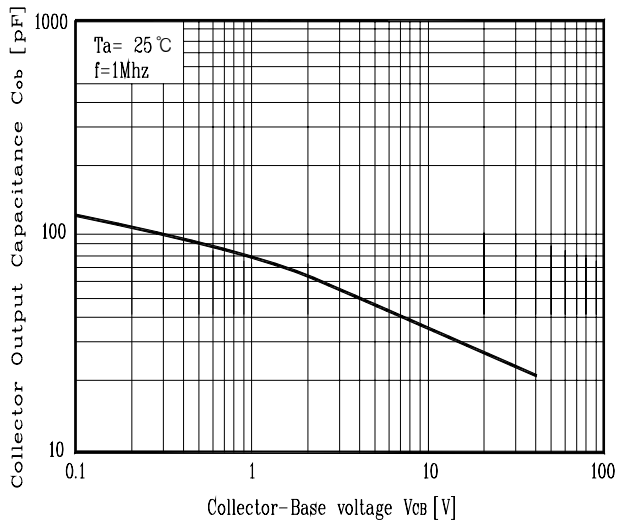
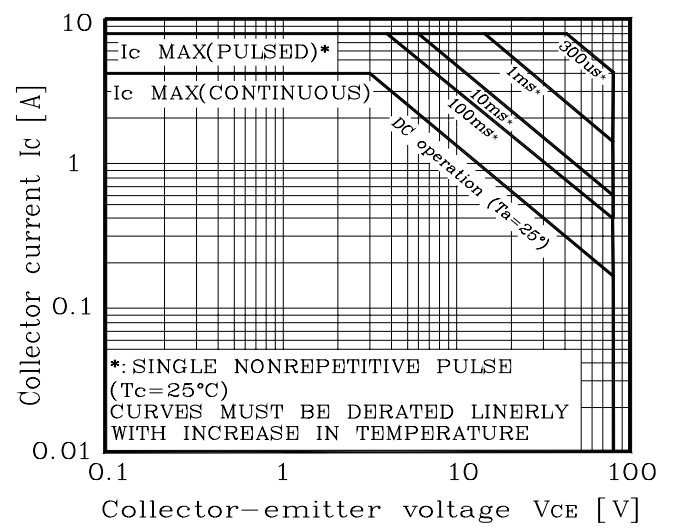
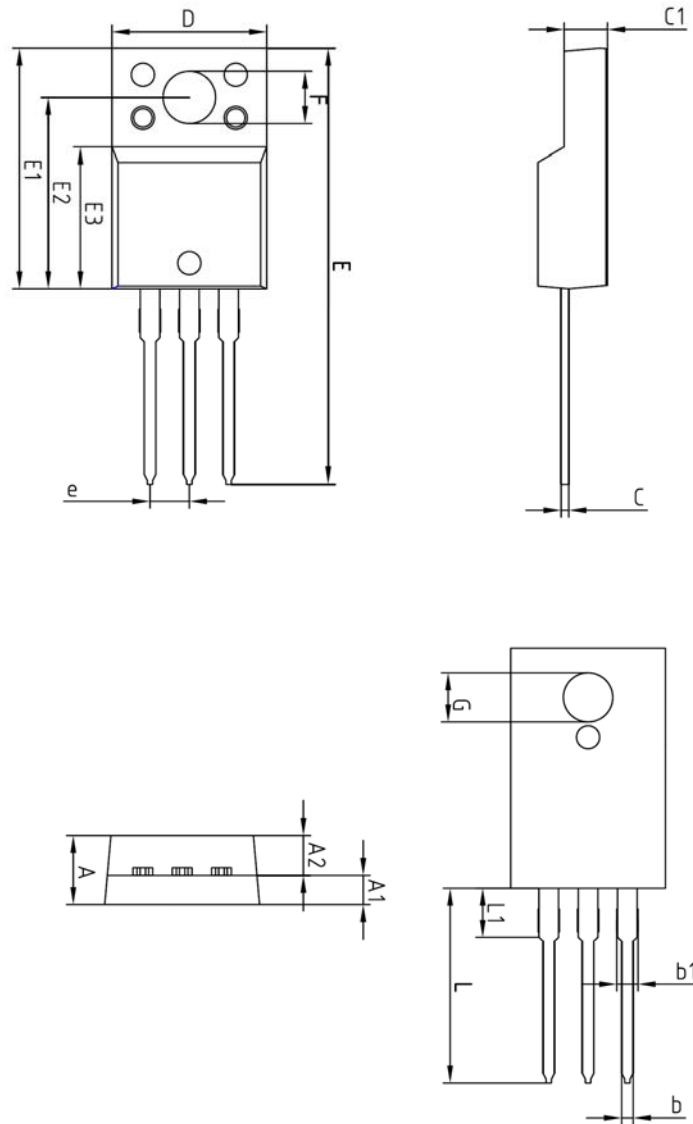


Fig. 8 Safe operating Area



Outline Dimension



SYMBOL	MILLIMETERS			NOTE
	MINIMUM	NOMINAL	MAXIMUM	
A	-	-	4.60	
A1	2.45	2.50	2.55	
A2	1.95	2.00	2.05	
b	0.65	0.75	0.85	
b1	1.07	1.27	1.47	
C	0.40	0.50	0.60	
C1	2.70	2.80	2.90	
D	9.90	10.00	10.10	
E	28.00	-	28.60	
E1	15.50	15.60	15.70	
E2	12.30	12.40	12.50	
E3	9.15	9.20	9.25	
F	3.30	3.40	3.50	
G	3.10	3.20	3.30	
e	2.54 BSC			
L	12.40	-	13.00	
L1	3.46 BSC			

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