SILICON NPN TRIPLE DIFFUSED TYPE

2SD873

INDUSTRIAL APPLICATIONS.

HIGH POWER AMPLIFIER APPLICATIONS.

HIGH POWER SWITCHING APPLICATIONS.

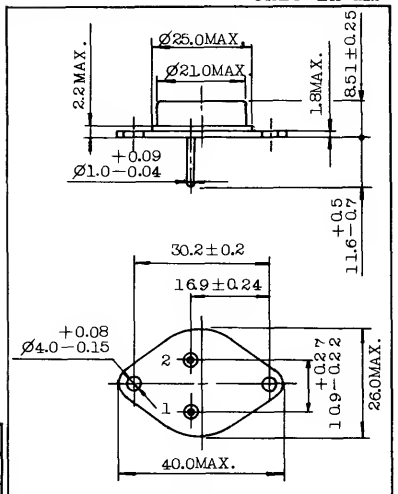
DC-DC CONVERTER APPLICATIONS.

REGULATOR APPLICATIONS.

FEATURES:

- High Power Dissipation : P_C=150W (Tc=25°C)
- High Collector Current : I_C=16A
- Low Saturation Voltage : $V_{CE(sat)}$=0.4V(Typ.) (I_C=8A)

Unit in mm



1. BASE
2. EMITTER
COLLECTOR (CASE)

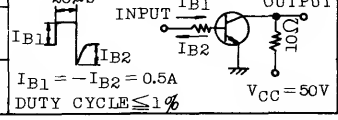
JEDEC	TO-204MA/TO-3
EIAJ	TC − 3, TB − 3
TOSHIBA	2 − 21D1A

Mounting Kit No. AC73
Weight : 12.6g

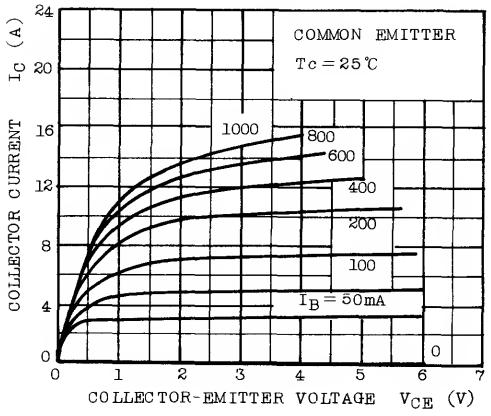
MAXIMUM RATINGS (Ta=25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V_{CBO}	160	V
Collector-Emitter Voltage	V_{CEO}	140	V
Emitter-Base Voltage	V_{EBO}	7	V
Collector Current	I_C	16	A
Base Current	I_B	4	A
Collector Power Dissipation (Tc=25°C)	P_C	150	W
Junction Temperature	T_j	175	°C
Storage Temperature Range	Tstg	-65~175	°C

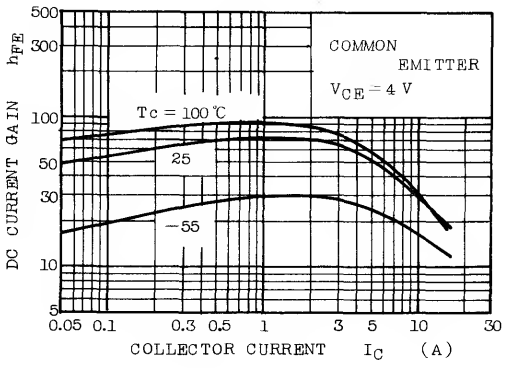
ELECTRICAL CHARACTERISTICS (Ta=25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current		I_{CBO}	V_{CB}=140V, I_E=0	-	-	100	μA
Emitter Cut-off Current		I_{EBO}	V_{EB}=7V, I_C=0	-	-	100	μA
Collector-Emitter Breakdown Voltage		$V_{(BR)CEO}$	I_C=50mA, I_B=0	140	-	-	V
DC Current Gain		$h_{FE(1)}$	V_{CE}=4V, I_C=8A	15	-	60	
		$h_{FE(2)}$	V_{CE}=4V, I_C=16A	5	-	-	
Collector-Emitter Saturation Voltage		$V_{CE(sat)}$	I_C=8A, I_B=0.8A	-	0.4	1.4	V
Base-Emitter Voltage		V_{BE}	V_{CE}=4V, I_C=8A	-	1.2	2.2	V
Transition Frequency		f_T	V_{CE}=4V, I_C=1A	-	1.5	-	MHz
Collector Output Capacitance		C_{ob}	V_{CB}=10V, I_E=0, f=1MHz	-	350	-	pF
Switching Time	Turn-on Time	t_{on}		-	2.5	-	μs
	Storage Time	t_{stg}		-	4.5	-	
	Fall Time	t_f		-	1.4	-	

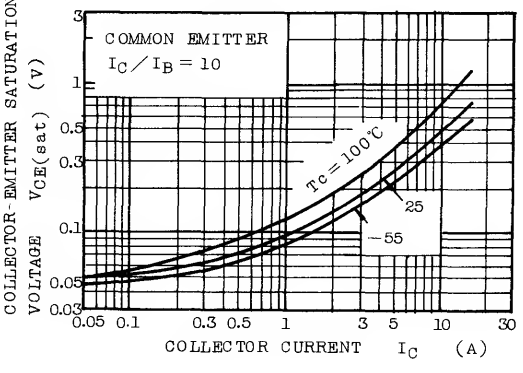
$I_C - V_{CE}$



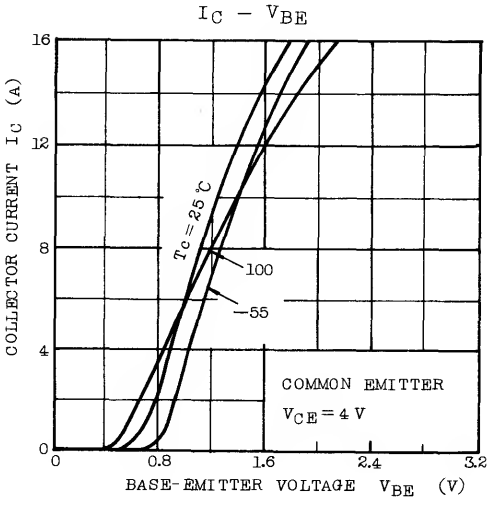
$h_{FE} - I_C$



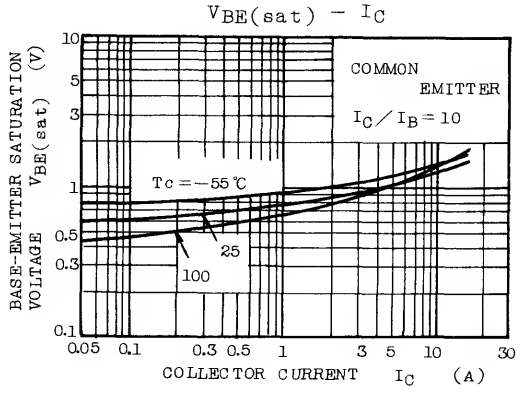
$V_{CE(sat)} - I_C$

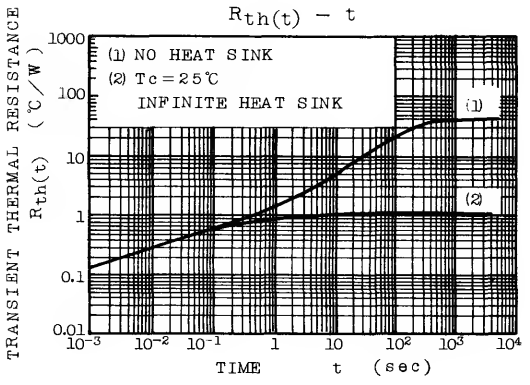


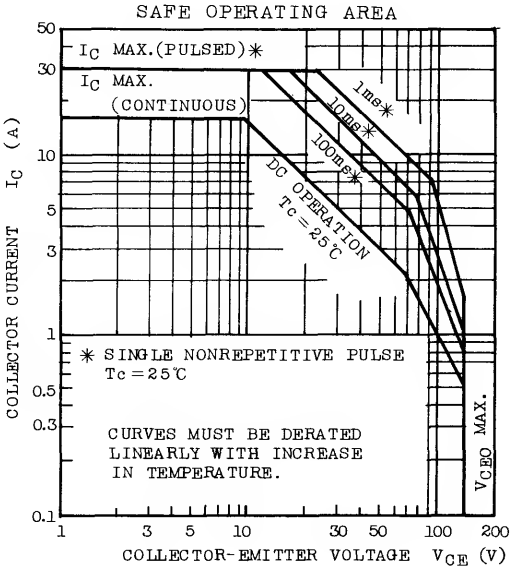
$I_C - V_{BE}$



$V_{BE(sat)} - I_C$




$R_{th(t)}$ – t
TRANSIENT THERMAL RESISTANCE $R_{th(t)}$ (℃/W)
(1) NO HEAT SINK
(2) Tc = 25℃
INFINITE HEAT SINK
(1)
(2)
1000
100
10
1
0.1
0.01
10^{-3} 10^{-2} 10^{-1} 1 10 10^{2} 10^{3} 10^{4}
TIME t (sec)


SAFE OPERATING AREA
I_C MAX.(PULSED)*
I_C MAX.
(CONTINUOUS)
1ms*
10ms*
100ms*
DC OPERATION
Tc = 25℃
* SINGLE NONREPETITIVE PULSE
Tc = 25℃
CURVES MUST BE DERATED
LINEARLY WITH INCREASE
IN TEMPERATURE.
V_{CEO} MAX.
COLLECTOR CURRENT I_C (A)
50
30
10
5
3
1
0.5
0.3
0.1
1 3 5 10 30 50 100 200
COLLECTOR-EMITTER VOLTAGE V_{CE} (V)