TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL TYPE

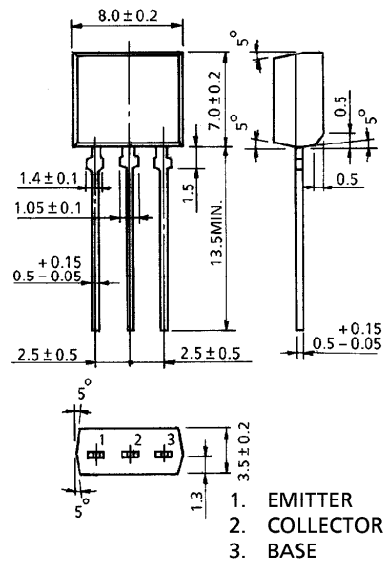
2SC5030

STOROBE FLASH APPLICATIONS

MEDIUM POWER AMPLIFIER APPLICATIONS

- High DC Current Gain
  : $h_{FE\,(1)}=800\sim3200$
  $h_{FE\,(2)}=250$ (Min.)
- Low Saturation Voltage
  : $V_{CE\,(sat)}=0.5V$ (Max.)
- High Collector Power Dissipation : $P_C=1.3W$

Unit in mm



JEDEC	—
EIAJ	—
TOSHIBA	2-8M1A

Weight : 0.55g (Typ.)

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector-Base Voltage		V_{CBO}	50	V
Collector-Emitter Voltage		V_{CES}	40	V
		V_{CEO}	20	
Emitter-Base Voltage		V_{EBO}	8	V
Collector Current	DC	I_C	5	V
	Pulse (Note 1)	I_{CP}	8	
Base Current		I_B	0.5	A
Collector Power Dissipation		P_C	1.3	W
Junction Temperature		T_j	150	°C
Storage Temperature Range		T_{stg}	−55~150	°C

Note 1 : Conditons : Pulse Width=10ms (Max.), Duty Cycle=30% (Max.)

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	I_{CBO}	$V_{CB}=50V$, $I_E=0$	—	—	100	nA
Emitter Cut-off Current	I_{EBO}	$V_{EB}=8V$, $I_C=0$	—	—	100	nA
Collector-Emitter Breakdown Voltage	$V_{(BR)\,CEO}$	$I_C=10mA$, $I_B=0$	20	—	—	V
DC Current Gain	$h_{FE\,(1)}$	$V_{CE}=2V$, $I_C=0.5A$	800	—	3200	
	$h_{FE\,(2)}$	$V_{CE}=2V$, $I_C=4A$	250	—	—	
Collector-Emitter Saturation Voltage	$V_{CE\,(sat)}$	$I_C=4A$, $I_B=40mA$	—	—	0.5	V
Base-Emitter Voltage	V_{BE}	$V_{CE}=2V$, $I_C=4A$	—	—	1.2	V
Transition Frequency	f_T	$V_{CE}=2V$, $I_C=0.5A$	—	150	—	MHz
Collector Output Capacitance	C_{ob}	$V_{CB}=10V$, $I_E=0$, f=1MHz	—	45	—	pF

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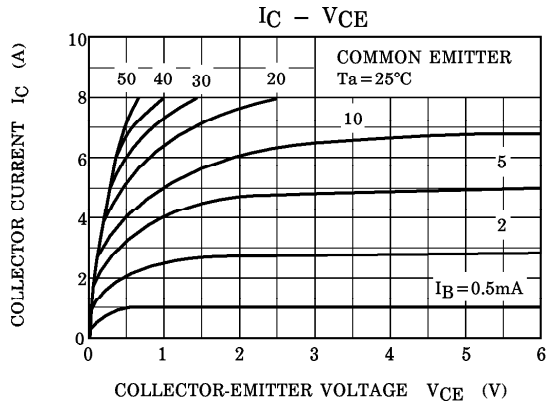
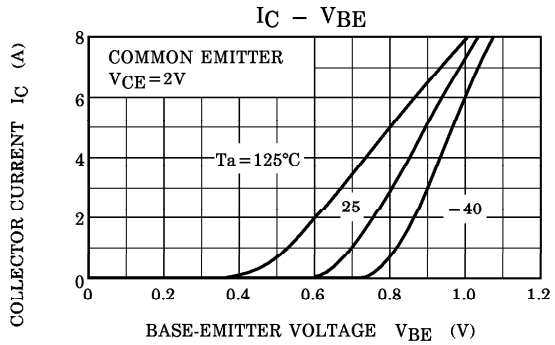
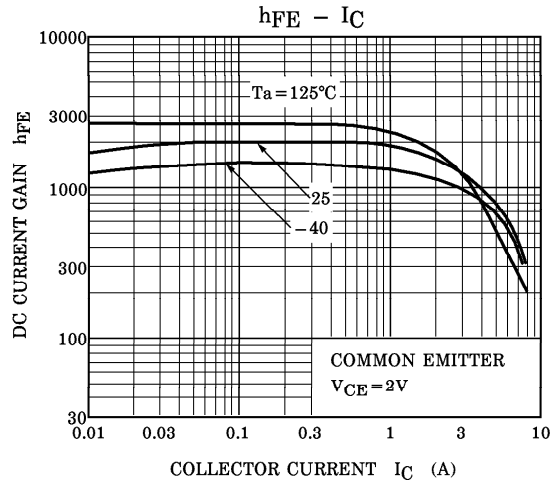
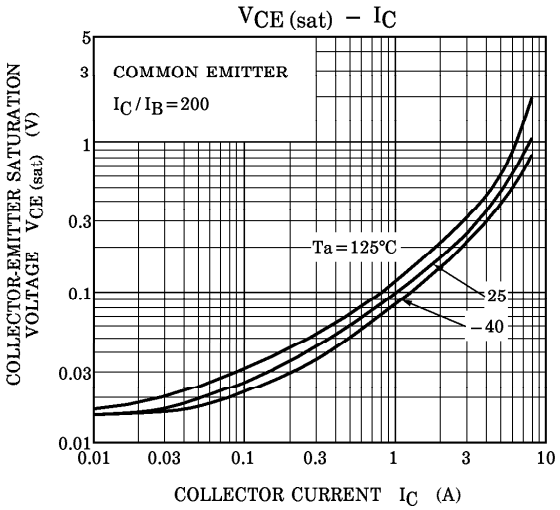
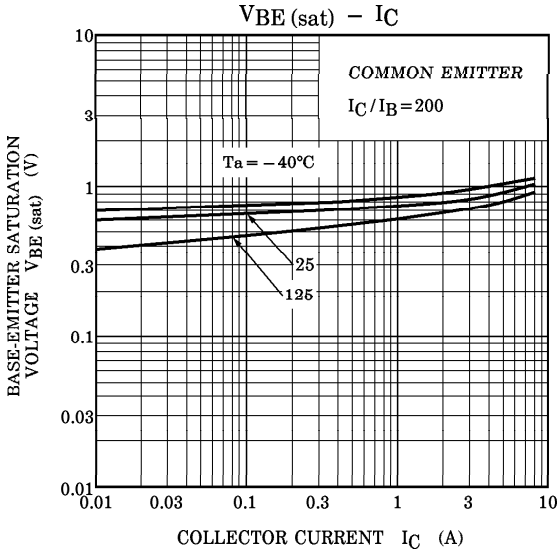
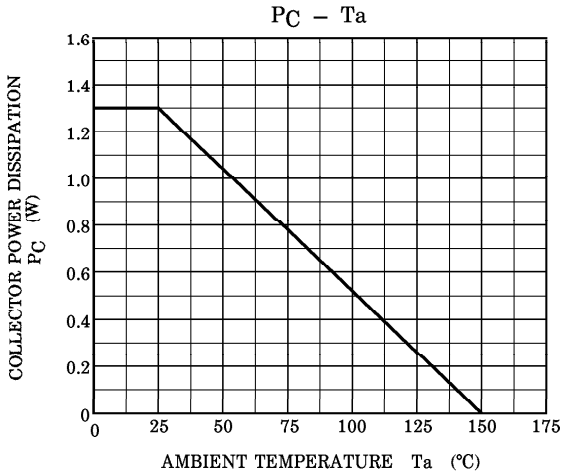

IC – VCE
COMMON EMITTER
Ta = 25°C
50 40 30 20
10
5
2
IB = 0.5mA
COLLECTOR CURRENT IC (A)
COLLECTOR-EMITTER VOLTAGE VCE (V)

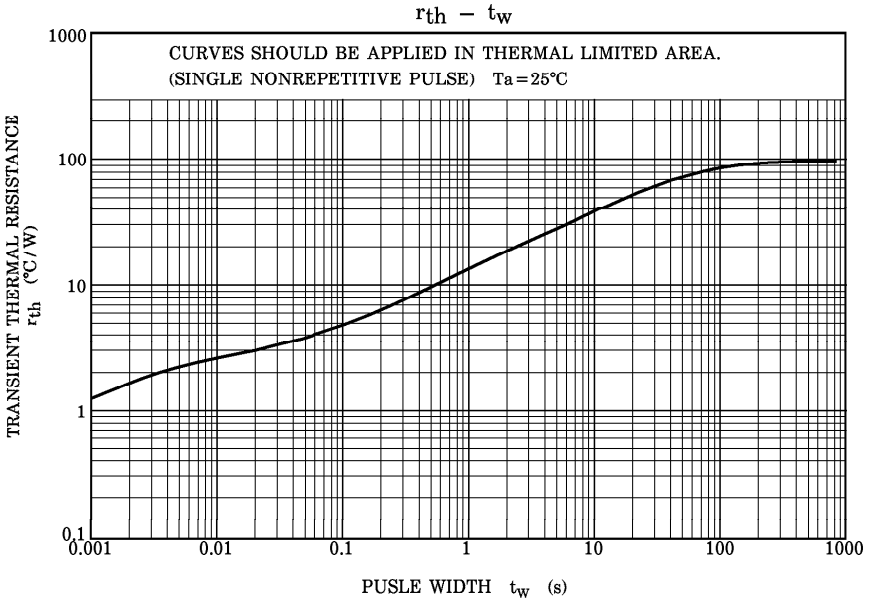

IC – VBE
COMMON EMITTER
VCE = 2V
Ta = 125°C
25
−40
COLLECTOR CURRENT IC (A)
BASE-EMITTER VOLTAGE VBE (V)

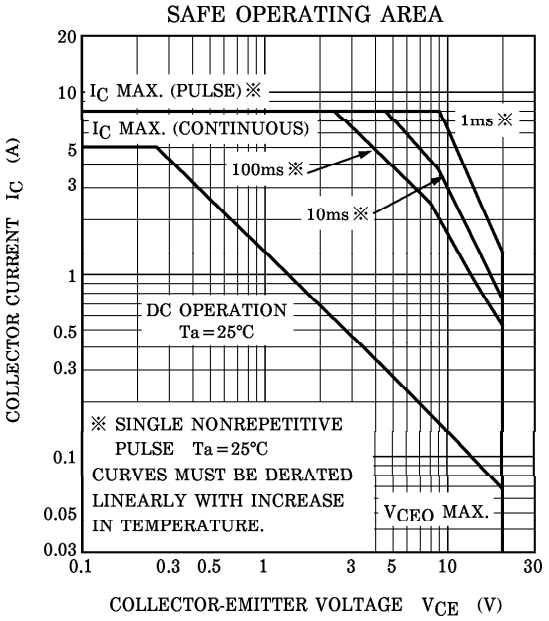

hFE – IC
Ta = 125°C
25
−40
COMMON EMITTER
VCE = 2V
DC CURRENT GAIN hFE
COLLECTOR CURRENT IC (A)


VCE (sat) – IC
COMMON EMITTER
IC / IB = 200
Ta = 125°C
25
−40
COLLECTOR-EMITTER SATURATION VOLTAGE VCE (sat) (V)
COLLECTOR CURRENT IC (A)


VBE (sat) – IC
COMMON EMITTER
IC / IB = 200
Ta = −40°C
25
125
BASE-EMITTER SATURATION VOLTAGE VBE (sat) (V)
COLLECTOR CURRENT IC (A)


PC – Ta
COLLECTOR POWER DISSIPATION PC (W)
AMBIENT TEMPERATURE Ta (°C)


rth – tw
CURVES SHOULD BE APPLIED IN THERMAL LIMITED AREA.
(SINGLE NONREPETITIVE PULSE) Ta = 25°C
TRANSIENT THERMAL RESISTANCE rth (°C/W)
1000
100
10
1
0.1
0.001
0.01
0.1
1
10
100
1000
PUSLE WIDTH tw (s)


SAFE OPERATING AREA
IC MAX. (PULSE) ※
IC MAX. (CONTINUOUS)
1ms ※
100ms ※
10ms ※
DC OPERATION
Ta = 25°C
※ SINGLE NONREPETITIVE
PULSE Ta = 25°C
CURVES MUST BE DERATED
LINEARLY WITH INCREASE
IN TEMPERATURE.
VCEO MAX.
COLLECTOR CURRENT IC (A)
20
10
5
3
1
0.5
0.3
0.1
0.05
0.03
0.1
0.3
0.5
1
3
5
10
30
COLLECTOR-EMITTER VOLTAGE VCE (V)