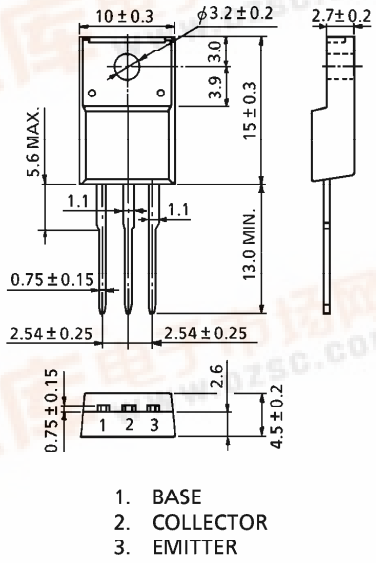
TOSHIBA TRANSISTOR SILICON NPN TRIPLE DIFFUSED TYPE

2SD2353

POWER AMPLIFIER APPLICATIONS

Unit in mm

- High DC Current Gain : h_{FE} = 800~3200
- Low Collector Saturation Voltage
  : $V_{CE\ (sat)}$ = 0.4V (Typ.)



1. BASE
2. COLLECTOR
3. EMITTER

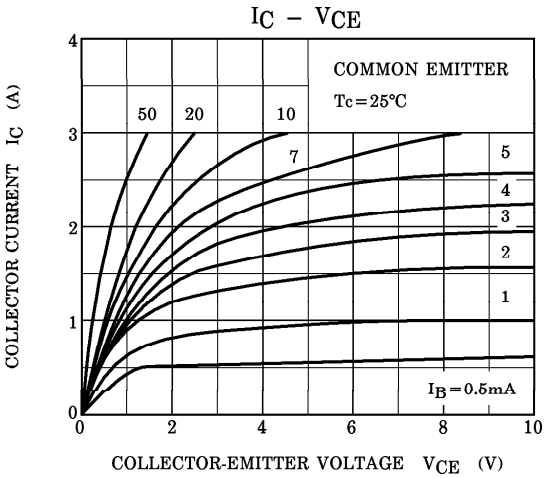
JEDEC	—
EIAJ	SC-67
TOSHIBA	2-10R1A

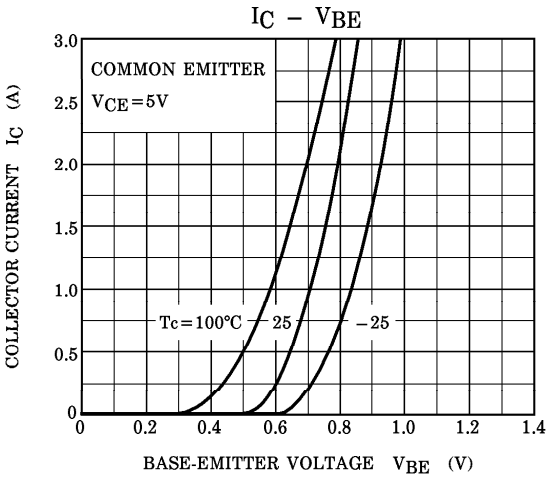
Weight : 1.7g (Typ.)

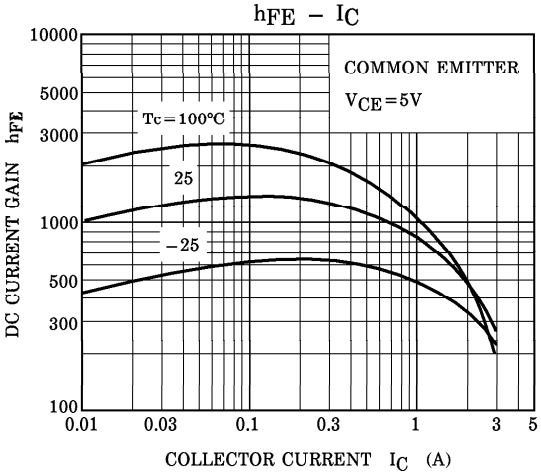
MAXIMUM RATINGS (Ta = 25°C)

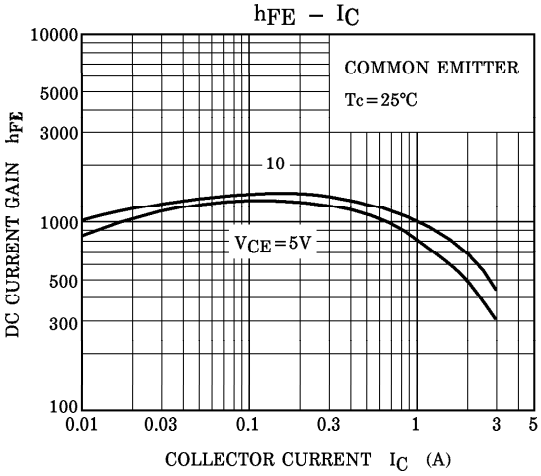
CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector-Base Voltage		V_{CBO}	60	V
Collector-Emitter Voltage		V_{CEO}	60	V
Emitter-Base Voltage		V_{EBO}	7	V
Collector Current	DC	I_C	3	A
	Pulse	I_{CP}	6	
Base Current		I_B	0.6	A
Collector Power Dissipation	Ta = 25°C	P_C	2	W
	Tc = 25°C		25	
Junction Temperature		T_j	150	°C
Storage Temperature Range		T_{stg}	−55~150	°C

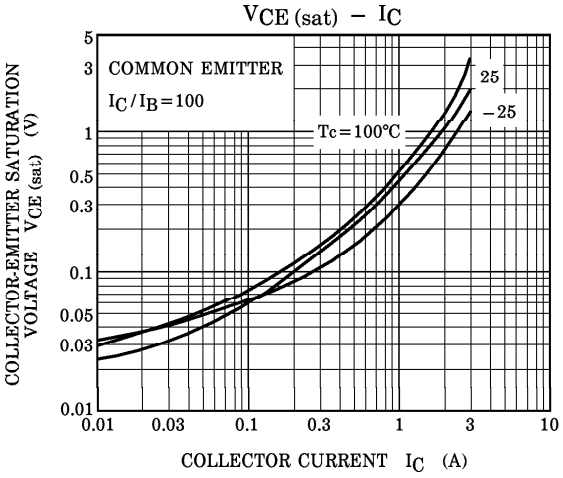
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	I_{CBO}	V_{CB} = 60V, I_E = 0	—	—	100	μA
Emitter Cut-off Current	I_{EBO}	V_{EB} = 6V, I_C = 0	—	—	100	μA
Collector-Emitter Breakdown Voltage	V_{CEO}	I_C = 50mA, I_B = 0	60	—	—	V
DC Current Gain	$h_{FE\ (1)}$	V_{CE} = 5V, I_C = 0.2A	800	—	3200	
	$h_{FE\ (2)}$	V_{CE} = 5V, I_C = 1.5A	350	—	—	
Collector-Emitter Saturation Voltage	$V_{CE\ (sat)}$	I_C = 1A, I_B = 10mA	—	0.4	1.0	V
Base-Emitter Voltage	V_{BE}	V_{CE} = 5V, I_C = 0.5A	—	0.7	1.0	V
Transition Frequency	f_T	V_{CE} = 5V, I_C = 0.5A	—	18	—	MHz
Collector Output Capacitance	C_{ob}	V_{CB} = 10V, I_E = 0, f = 1MHz	—	42	—	pF

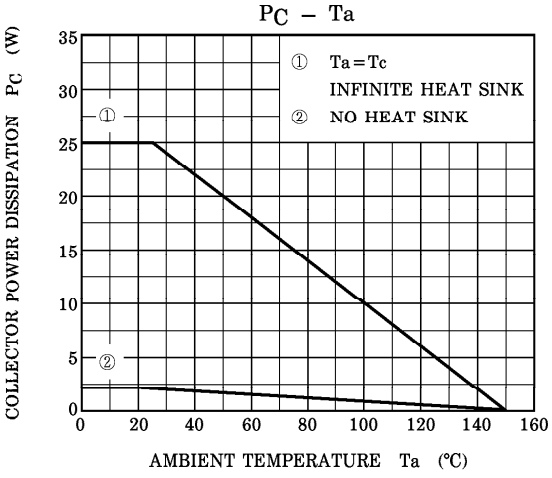












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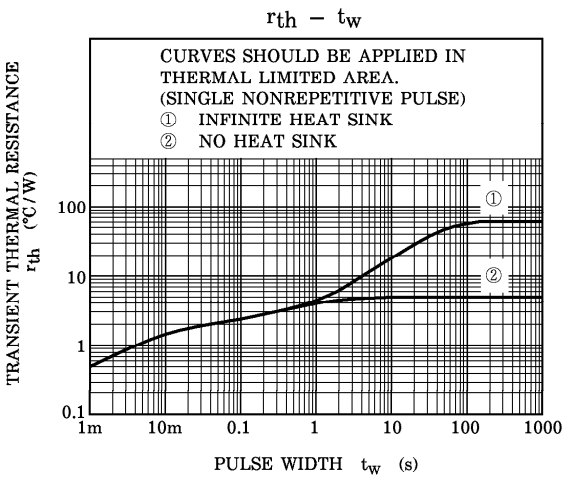
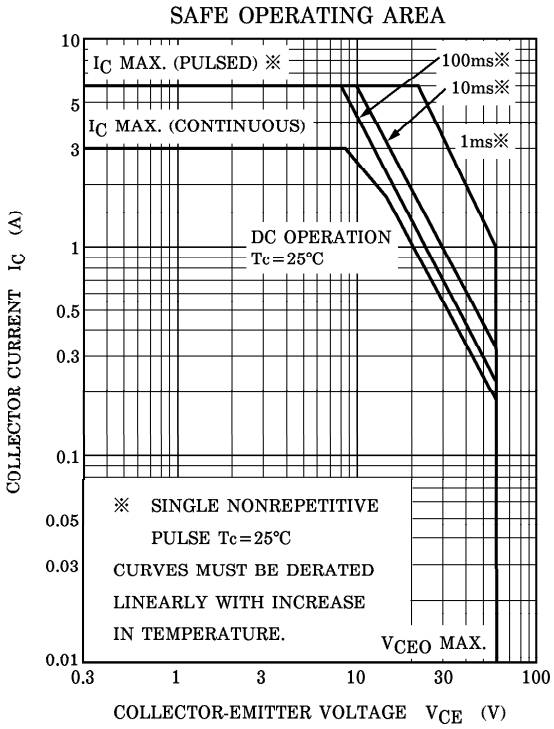

rth – tw
CURVES SHOULD BE APPLIED IN
THERMAL LIMITED AREA.
(SINGLE NONREPETITIVE PULSE)
① INFINITE HEAT SINK
② NO HEAT SINK
TRANSIENT THERMAL RESISTANCE rth (°C/W)
100
10
1
0.1
1m
10m
0.1
1
10
100
1000
PULSE WIDTH tw (s)


SAFE OPERATING AREA
IC MAX. (PULSED) ※
IC MAX. (CONTINUOUS)
100ms※
10ms※
1ms※
DC OPERATION
Tc=25°C
※ SINGLE NONREPETITIVE
PULSE Tc=25°C
CURVES MUST BE DERATED
LINEARLY WITH INCREASE
IN TEMPERATURE.
VCEO MAX.
COLLECTOR CURRENT IC (A)
10
5
3
1
0.5
0.3
0.1
0.05
0.03
0.01
0.3
1
3
10
30
100
COLLECTOR-EMITTER VOLTAGE VCE (V)