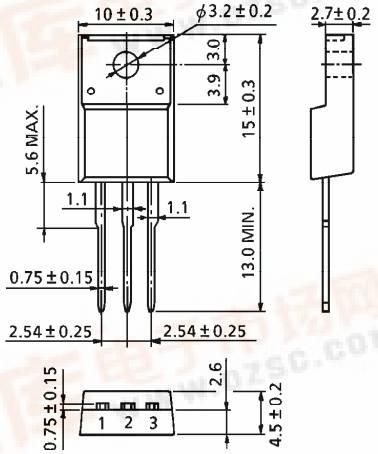
TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL TYPE

2SD2241

SWITCHING APPLICATIONS

Unit in mm



1. BASE
2. COLLECTOR
3. EMITTER

JEDEC	—
EIAJ	SC-67
TOSHIBA	2-10R1A

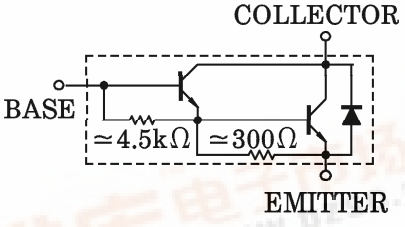
Weight : 1.7g (Typ.)

- High DC Current Gain : h_{FE} = 2000 (Min.)
- Low Saturation Voltage : $V_{CE\ (sat)}$ = 1.5V (Max.)
- Complementary to 2SB1481

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Collector-Base Voltage		V_{CBO}	100	V
Collector-Emitter Voltage		V_{CEO}	100	V
Emitter-Base Voltage		V_{EBO}	5	V
Collector Current	DC	I_C	±4	A
	Pulse	I_{CP}	±6	
Base Current		I_B	0.3	A
Collector Power Dissipation	Ta = 25°C	P_C	2.0	W
	Tc = 25°C		25	
Junction Temperature		T_j	150	°C
Storage Temperature Range		T_{stg}	−55~150	°C

EQUIVALENT CIRCUIT



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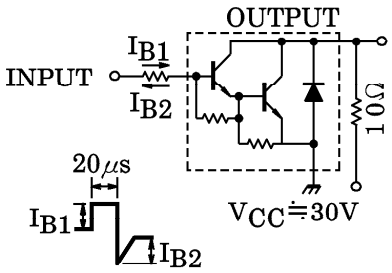
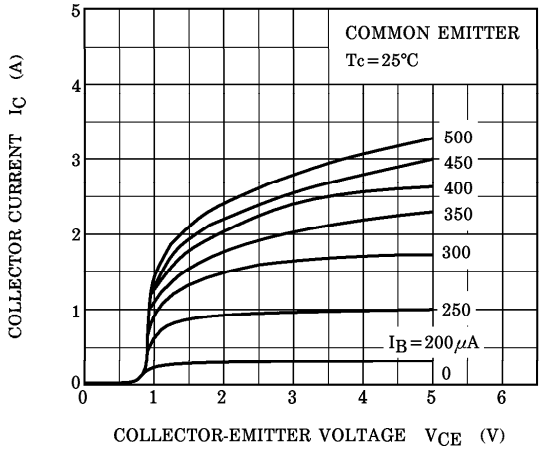
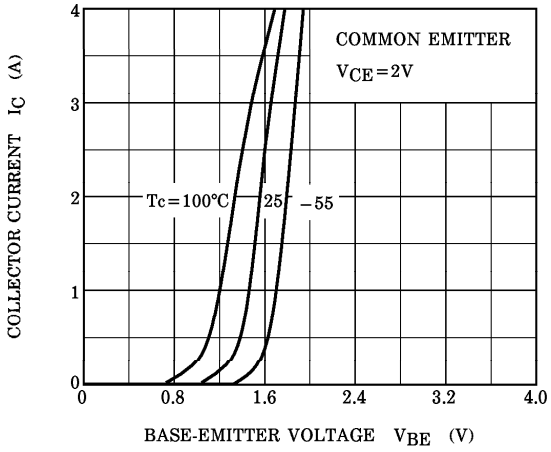
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current		I_{CBO}	V_{CB} = 100V, I_E = 0	—	—	20	μA
Emitter Cut-off Current		I_{EBO}	V_{EB} = 5V, I_C = 0	—	—	2.5	mA
Collector-Emitter Breakdown Voltage		$V_{(BR)\,CEO}$	I_C = 10mA, I_B = 0	100	—	—	V
DC Current Gain		$h_{FE\,(1)}$	V_{CE} = 2V, I_C = 1.5A	2000	—	—	
		$h_{FE\,(2)}$	V_{CE} = 2V, I_C = 3A	1000	—	—	
Collector-Emitter Saturation Voltage		$V_{CE\,(sat)}$	I_C = 3A, I_B = 6mA	—	—	1.5	V
Base-Emitter Saturation Voltage		$V_{BE\,(sat)}$	I_C = 3A, I_B = 6mA	—	—	2.0	V
Emitter-Collector Forward Voltage		V_{ECF}	I_E = 1A, I_B = 0	—	—	2.0	V
Switching Time	Turn-on Time	t_{on}		—	0.2	—	μs
	Storage Time	t_{stg}		—	1.5	—	
	Fall Time	t_f	$I_{B1} = -I_{B2}$ = 6mA, DUTY CYCLE ≦ 1%	—	0.6	—	

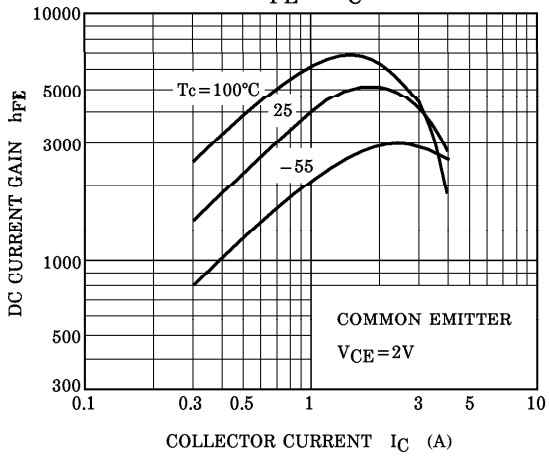
I_C – V_{CE}



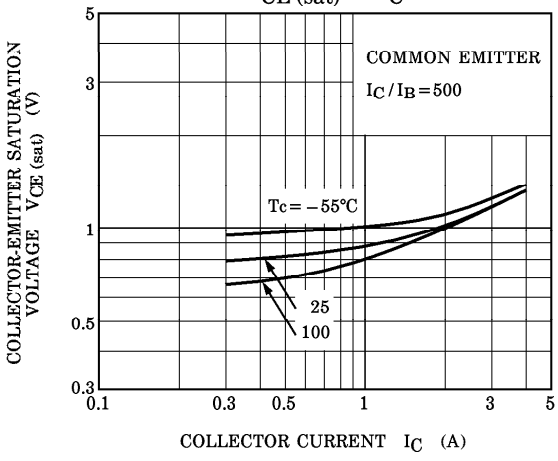
I_C – V_{BE}



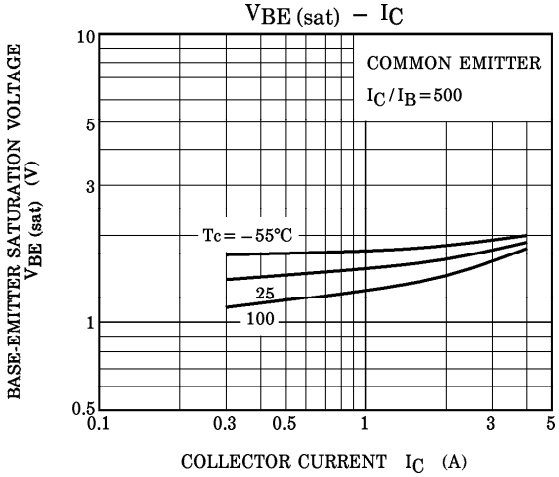
h_{FE} – I_C



$V_{CE\,(sat)}$ – I_C



$V_{BE\,(sat)}$ – I_C



SAFE OPERATING AREA