

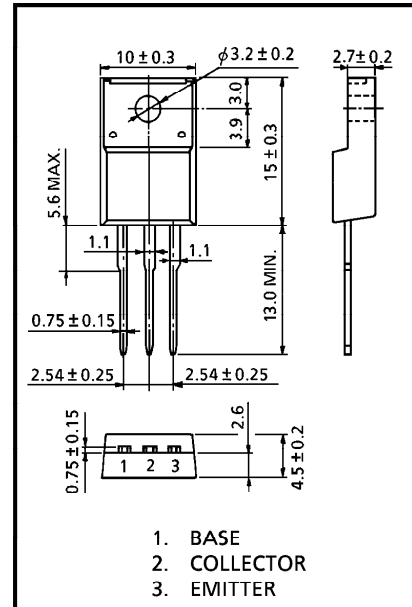
TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL TYPE

# 2SD2241

SWITCHING APPLICATIONS

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

Unit in mm



1. BASE
2. COLLECTOR
3. EMITTER

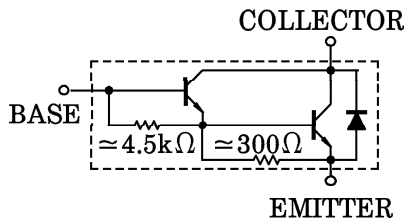
MAXIMUM RATINGS (Ta = 25°C)

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

JEDEC	—
EIAJ	SC-67
TOSHIBA	2-10R1A

Weight : 1.7g (Typ.)

EQUIVALENT CIRCUIT



961001EAA2

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ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current		ICBO	V <sub>CB</sub> = 100V, I <sub>E</sub> = 0	—	—	20	μA
Emitter Cut-off Current		IEBO	V <sub>EB</sub> = 5V, I <sub>C</sub> = 0	—	—	2.5	mA
Collector-Emitter Breakdown Voltage		V (BR) CEO	I <sub>C</sub> = 10mA, I <sub>B</sub> = 0	100	—	—	V
DC Current Gain		h <sub>FE</sub> (1)	V <sub>CE</sub> = 2V, I <sub>C</sub> = 1.5A	2000	—	—	
		h <sub>FE</sub> (2)	V <sub>CE</sub> = 2V, I <sub>C</sub> = 3A	1000	—	—	
Collector-Emitter Saturation Voltage		V <sub>CE</sub> (sat)	I <sub>C</sub> = 3A, I <sub>B</sub> = 6mA	—	—	1.5	V
Base-Emitter Saturation Voltage		V <sub>BE</sub> (sat)	I <sub>C</sub> = 3A, I <sub>B</sub> = 6mA	—	—	2.0	V
Emitter-Collector Forward Voltage		V <sub>ECF</sub>	I <sub>E</sub> = 1A, I <sub>B</sub> = 0	—	—	2.0	V
Switching Time	Turn-on Time	t <sub>on</sub>	<p>INPUT <math>I_{B1}</math> <math>I_{B2}</math> OUTPUT <math>10\Omega</math> <math>V_{CC} = 30V</math> <math>20\mu s</math> <math>I_{B1}</math> <math>I_{B2}</math></p> <p><math>I_{B1} = -I_{B2} = 6mA</math>, DUTY CYCLE <math>\leq 1\%</math></p>	—	0.2	—	μs
	Storage Time	t <sub>stg</sub>		—	1.5	—	
	Fall Time	t <sub>f</sub>		—	0.6	—	

