

TOSHIBA Transistor Silicon NPN Triple Diffused Type

2SD2440

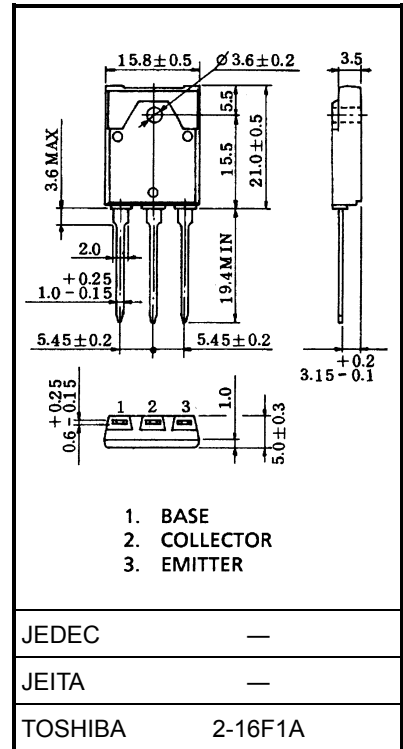
Switching Application

- High breakdown voltage: $V_{CBO} = 100\text{ V}$
: $V_{EBO} = 18\text{ V}$
- Low saturation voltage: $V_{CE(sat)} = 1.2\text{ V (max)}$ ($I_C = 5\text{ A}$, $I_B = 1\text{ A}$)
- High speed: $t_f = 1\text{ }\mu\text{s (typ.)}$ ($I_C = 5\text{ A}$, $I_B = \pm 0.5\text{ A}$)
- High DC current gain: $h_{FE} = 200\text{ (min)}$ ($V_{CE} = 5\text{ V}$, $I_C = 0.5\text{ A}$)

Maximum Ratings ($T_a = 25^\circ\text{C}$)

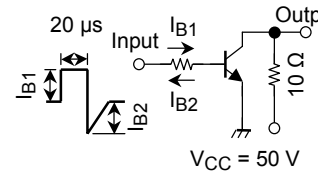
Characteristics	Symbol	Rating	Unit
Collector-base voltage	V_{CBO}	100	V
Collector-emitter voltage	V_{CEO}	60	V
Emitter-base voltage	V_{EBO}	18	V
Collector current	DC	I_C	A
	Pulse	I_{CP}	
Base current	I_B	2	A
Collector power dissipation ($T_c = 25^\circ\text{C}$)	P_C	40	W
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature range	T_{stg}	-55 to 150	$^\circ\text{C}$

Unit: mm



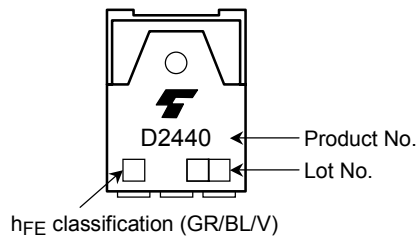
Weight: 5.8 g (typ.)

Electrical Characteristics (Ta = 25°C)

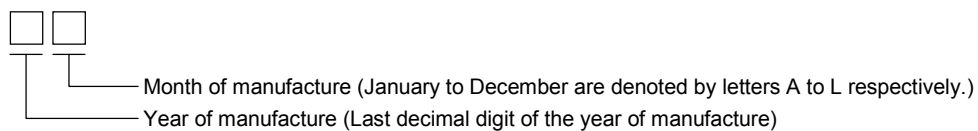
Characteristics		Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current		I_{CBO}	$V_{CB} = 100\text{ V}, I_E = 0$	—	—	10	μA
Collector cut-off current		I_{CER}	$V_{CE} = 80\text{ V}, R_{BE} = 50\ \Omega$	—	—	5	mA
Emitter cut-off current		I_{EBO}	$V_{EB} = 15\text{ V}, I_C = 0$	—	—	2	μA
Collector-emitter breakdown voltage		$V_{(BR)CEO}$	$I_C = 50\text{ mA}, I_B = 0$	60	—	—	V
DC current gain	$h_{FE(1)}$ (Note)		$V_{CE} = 5\text{ V}, I_C = 0.5\text{ A}$	200	—	900	
	$h_{FE(2)}$		$V_{CE} = 5\text{ V}, I_C = 5\text{ A}$	20	—	100	
Collector-emitter saturation voltage		$V_{CE(sat)}$	$I_C = 5\text{ A}, I_B = 1\text{ A}$	—	—	1.2	V
Base-emitter saturation voltage		$V_{BE(sat)}$	$I_C = 5\text{ A}, I_B = 1\text{ A}$	—	—	2.5	V
Transition frequency		f_T	$V_{CE} = 10\text{ V}, I_C = 0.5\text{ A}$	—	5	—	MHz
Collector output capacitance		C_{ob}	$V_{CB} = 10\text{ V}, I_E = 0, f = 1\text{ MHz}$	—	71	—	pF
Switching time	Turn-on time	t_{on}	 <p>$I_{B1} = -I_{B2} = 0.5\text{ A}, \text{duty cycle} \leq 1\%$</p>	—	1	2	μs
	Storage time	t_{stg}		—	2	4	
	Fall time	t_f		—	1	3	

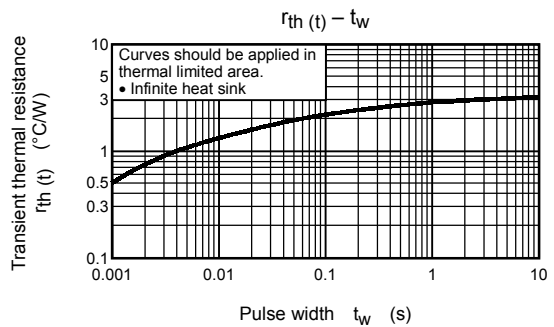
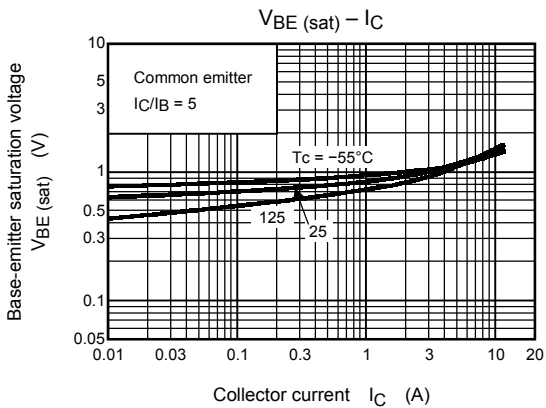
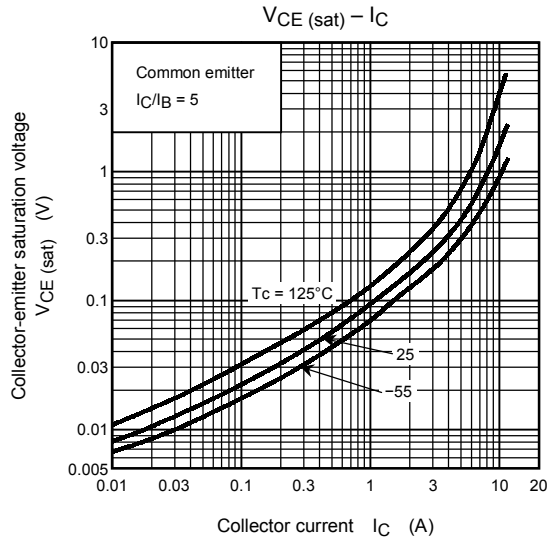
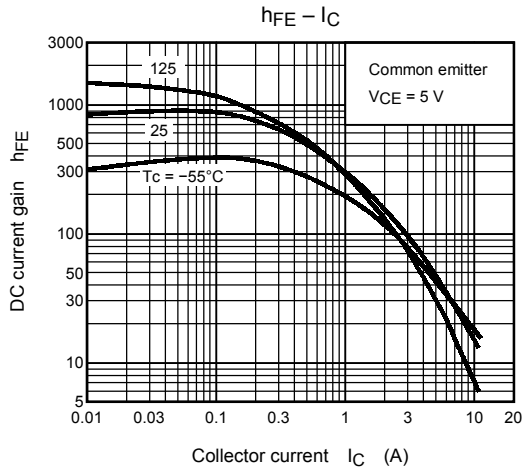
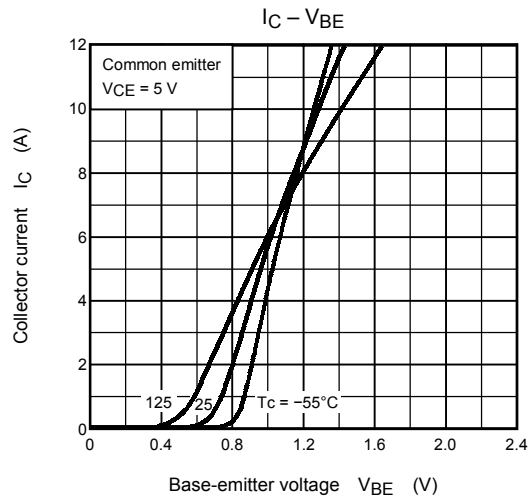
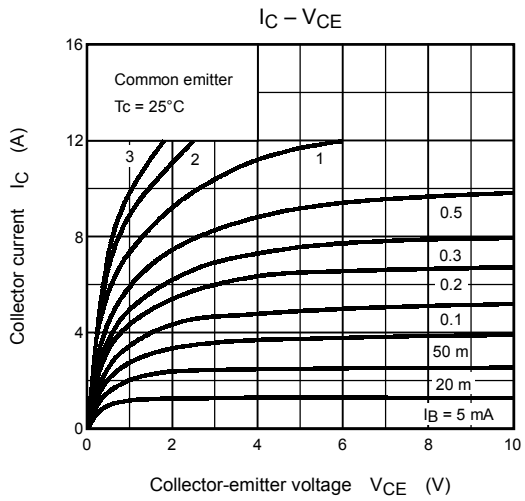
Note: $h_{FE(1)}$ classification GR: 200 to 400, BL: 300 to 600, V: 450 to 900

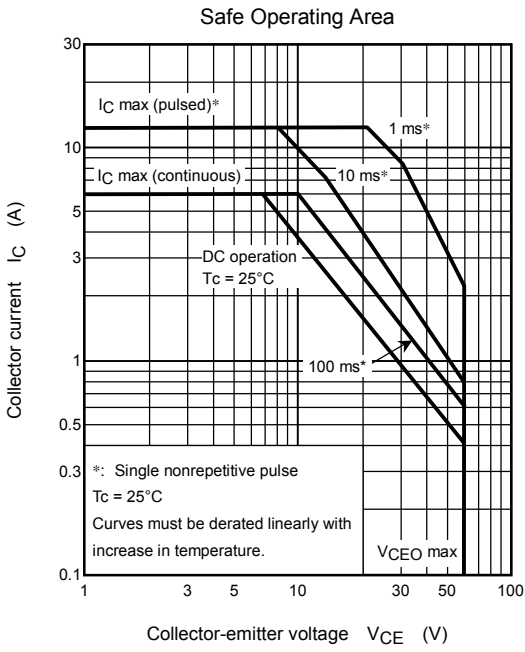
Marking



Explanation of Lot No.







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