TOSHIBA Transistor Silicon NPN Epitaxial Type

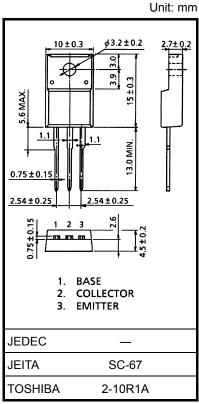
2SD2092

Switching Applications
Lamp, Solenoid Drive Applications

- High DC current gain: h_{FE} (1) = 500 to 1500
- Low collector saturation voltage: VCE (sat) = 0.3 V (max)

Absolute Maximum Ratings (Tc = 25°C)

Characteristics		Symbol	Rating	Unit	
Collector-base voltage		V_{CBO}	100	V	
Collector-emitter voltage		V _{CEO}	100	V	
Emitter-base voltage		V _{EBO}	7	V	
Collector current	DC	IC	3	Α	
	Pulse	ICP	5		
Base current		Ι _Β	1	Α	
Collector power dissipation	Ta = 25°C	Pc	2.0	W	
	Tc = 25°C	FC	25		
Junction temperature		Tj	150	°C	
Storage temperature range		T _{stg}	-55 to 150	°C	

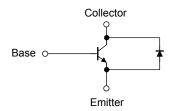


Weight: 1.7 g (typ.)

Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in

temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) are within the absolute maximum ratings. Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/Derating Concept and Methods) and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

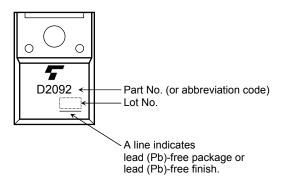
Equivalent Circuit

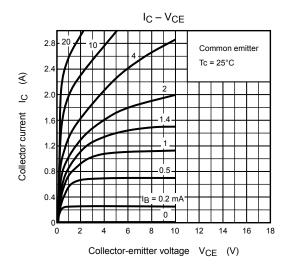


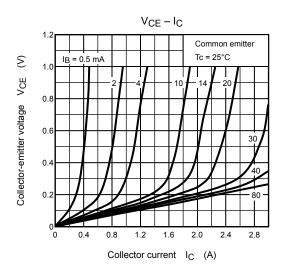
Electrical Characteristics (Tc = 25°C)

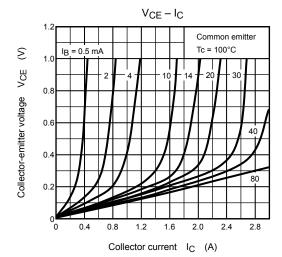
Chara	Characteristics Symbol Test Condition		Min	Тур.	Max	Unit	
Collector cut-off c	urrent	I _{CBO}	V _{CB} = 100 V, I _E = 0	_	_	10	μΑ
Emitter cut-off current		I _{EBO}	V _{EB} = 7 V, I _C = 0	_	_	10	μA
Collector-emitter breakdown voltage		V (BR) CEO	I _C = 50 mA, I _B = 0	100	_	_	V
DC current gain		h _{FE (1)}	V _{CE} = 1 V, I _C = 0.5 A	500	_	1500	
		h _{FE (2)}	V _{CE} = 1 V, I _C = 1 A	150	_	_	
Collector-emitter saturation voltage		V _{CE} (sat)	I _C = 1 A, I _B = 10 mA	_	_	0.3	V
Base-emitter saturation voltage		V _{BE} (sat)	I _C = 1 A, I _B = 10 mA	_	_	1.2	V
Collector-emitter forward voltage		V _{ECF}	I _E = 1 A, I _B = 0	_	_	2.0	V
Transition frequency		f _T	V _{CE} = 5 V, I _C = 0.5 A	_	140	_	MHz
Collector output capacitance		C _{ob}	V _{CB} = 10 V, I _E = 0, f = 1 MHz	_	30	_	pF
Switching time S	Turn-on time	t _{on}	Output $ \begin{array}{c} $	_	0.5	_	
	Storage time	t _{stg}		_	5	_	μs
	Fall time	t _f		_	0.7	_	

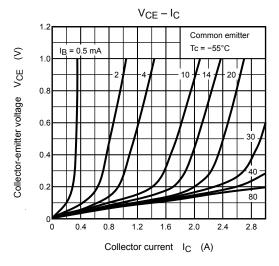
Marking

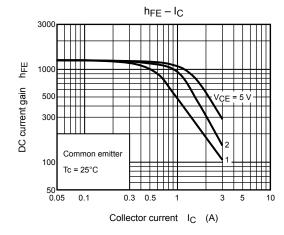


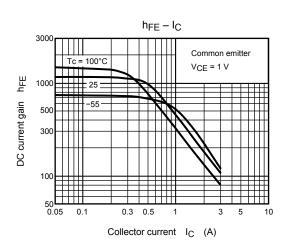


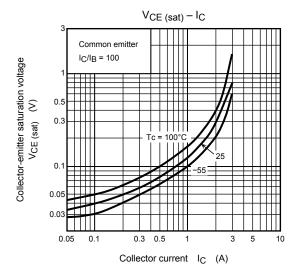


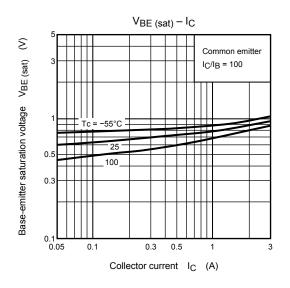


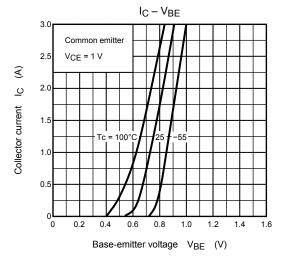


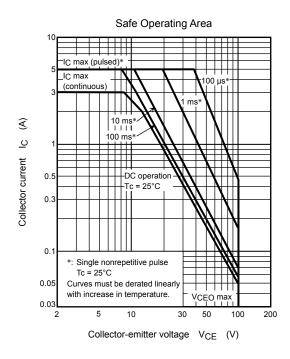


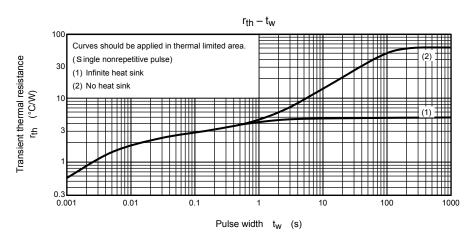












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