

No.1577B

2SC3451

NPN Triple Diffused Planar Silicon Transistor

500V/15A Switching Regulator Applications

Features

- High breakdown voltage and high reliability
- Fast switching speed (t_f : 0.1 μ s typ.)
- Wide ASO
- Adoption of MBIT process

Absolute Maximum Ratings at Ta=25°C

			unit	
Collector-to-Base Voltage	VCBO	800	V	
Collector-to-Emitter Voltage	VCEO	500	V	
Emitter-to-Base Voltage	VEBO	7	V	
Collector Current	IC	15	A	
Collector Current (Pulse)	ICP	$PW \leq 300\mu s, \text{Duty Cycle} \leq 10\%$	25	A
Base Current	IB	4	A	
Collector Dissipation	PC	Tc=25°C	100	W
Junction Temperature	Tj		150	°C
storage Temperature	Tstg		-55 to +150	°C

Electrical Characteristics at Ta=25°C

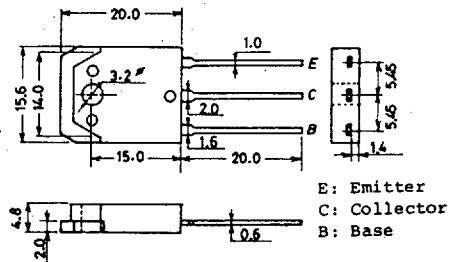
			min	typ	max	unit
Collector Cutoff Current	ICBO	VCB=500V, IE=0			10	μ A
Emitter Cutoff Current	IEBO	VEB=5V, IC=0			10	μ A
DC Current Gain	hFE(1)	VCE=5V, IC=1.2A	15*		50*	
	hFE(2)	VCE=5V, IC=6A	8			
Gain-Bandwidth Product	fT	VCE=10V, IC=1.2A		18		MHz
Output Capacitance	Cob	VCB=10V, f=1MHz		160		pF
C-E Saturation Voltage	VCE(sat)	IC=6A, IB=1.2A			1.0	V
B-E Saturation Voltage	VBE(sat)	IC=6A, IB=1.2A			1.5	V
C-B Breakdown Voltage	V(BR)CBO	IC=1mA, IE=0	800			V
C-E Breakdown Voltage	V(BR)CEO	IC=5mA, RBE=∞	500			V
E-B Breakdown Voltage	V(BR)EBO	IE=1mA, IC=0	7			V

*: The hFE(1) of the 2SC3451 is classified as follows. When specifying the hFE(1) rank, specify two ranks or more in principle

15	L	30	20	M	40	30	N	50
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Package Dimensions 2022
(unit:mm)



E: Emitter
C: Collector
B: Base

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			min	typ	max	unit
C-E Sustain Voltage	$V_{CEX}(sus)$	$I_C=5A,$ $I_{B1}=-I_{B2}=2A,$ $L=500\mu H, clamped$	500			V
Turn-on Time	t_{on}	$V_{CC}=200V,$ $5I_{B1}=-2.5I_{B2}=I_C=7A,$ $R_L=28.6\Omega$			0.5	μs
Storage Time	t_{stg}				3.0	μs
Fall Time	t_f				0.3	μs

Switching Time Test Circuit

