High-voltage Switching Transistor (Camera strobes and Telephone, Power supply) (−400V, −0.1A)

2SA1759

● Features

1) High breakdown voltage. (BV_{CEO}=−400V)
2) Low saturation voltage, typically $V_{CE(sat)}$ =−0.2V at I_C / I_B=−20mA / −2mA.
3) High switching speed, typically tf=1 μs at I_C=100mA.
4) Wide SOA (safe operating area).
5) Complements the 2SA4505.

● Packaging specifications and h_{FE}

Type	2SA1759
Package	MPT3
h_{FE}	P
Marking	AH✻
Code	T100
Basic ordering unit (pieces)	3000

✻ Denotes h_{FE}

● Absolute maximum ratings (Ta=25℃)

Parameter	Symbol	Limits	Unit
Collector-base voltage	V_{CBO}	−400	V
Collector-emitter voltage	V_{CEO}	−400	V
Emitter-base voltage	V_{EBO}	−7	V
Collector current	I_C	−0.1	A(DC)
		−0.2	A(Pulse) ✻1
Collector power dissipation	P_C	0.5	W
		2 ✻2	
Junction temperature	Tj	150	℃
Storage temperature	Tstg	−55～+150	℃

✻1 Single pulse, Pw=100ms
✻2 When mounted on a 40×40×0.7 mm ceramic board.

● Electrical characteristics (Ta=25℃)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CBO}	−400	—	—	V	I_C=−50 μA
Collector-emitter breakdown voltage	BV_{CEO}	−400	—	—	V	I_C=−1mA
Emitter-base breakdown voltage	BV_{EBO}	−7	—	—	V	I_E=−50 μA
Collector cutoff current	I_{CBO}	—	—	−10	μA	V_{CB}=−400V
Emitter cutoff current	I_{EBO}	—	—	−10	μA	V_{EB}=−6V
Collector-emitter saturation voltage	$V_{CE(sat)}$	—	−0.2	−0.5	V	I_C/I_B=−20mA/−2mA
Base-emitter saturation voltage	$V_{BE(sat)}$	—	—	−1.2	V	I_C/I_B=−20mA/−2mA
DC current transfer ratio	h_{FE}	82	—	180	—	V_{CE}=−10V , I_C=−10mA
Transition frequency	fT	—	12	—	MHz	V_{CE}=−10V , I_E=10mA , f=5MHz
Output capacitance	Cob	—	13	—	pF	V_{CB}=−10V , I_E=0A , f=1MHz
Turn-on time	ton	—	0.7	—	μs	I_C=−100mA R_L=1.5kΩ
Storage time	tstg	—	1.8	—	μs	I_{B1}=−I_{B2}=−10mA
Fall time	tf	—	1	—	μs	V_{CC}≒−150V

(96-97-A324)

Power Transistor (400V, 0.1A)

2SC4505 / 2SC4620

● Features

1) High breakdown voltage. (BV_{CEO}=400V)
2) Low saturation voltage, typically $V_{CE(sat)}$ =0.05V at I_C / I_B=10mA / 1mA.
3) High switching speed, typically tf=1.7 μs at I_C=100mA
4) Complements the 2SC4505 and the 2SA1759.

● Packaging specifications and h_{FE}

Type	2SC4505	2SC4620
Package	MPT3	ATV
h_{FE}	PQ	Q
Marking	CE✻	—
Code	T100	TV2
Basic ordering unit (pieces)	1000	2500

✻ Denotes h_{FE}

● Absolute maximum ratings (Ta=25℃)

Parameter		Symbol	Limits	Unit
Collector-base voltage		V_{CBO}	400	V
Collector-emitter voltage		V_{CEO}	400	V
Emitter-base voltage		V_{EBO}	7	V
Collector current		I_C	0.1	A
		I_{CP}	0.2	A ✻
Collector power dissipation	2SC4505	P_C	0.5	W
	2SC4620		1	
Junction temperature		Tj	150	℃
Storage temperature		Tstg	−55～+150	℃

✻ Single pulse Pw=20ms Duty=1 / 2

● Electrical characteristics (Ta=25℃)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CBO}	400	—	—	V	I_C=50 μA
Collector-emitter breakdown voltage	BV_{CEO}	400	—	—	V	I_C=1mA
Emitter-base breakdown voltage	BV_{EBO}	7	—	—	V	I_E=50 μA
Collector cutoff current	I_{CBO}	—	—	10	μA	V_{CB}=400V
Emitter cutoff current	I_{EBO}	—	—	10	μA	V_{EB}=6V
Collector-emitter saturation voltage	$V_{CE(sat)}$	—	0.05	0.5	V	I_C=10mA , I_B=1mA
Base-emitter saturation voltage	$V_{BE(sat)}$	—	—	1.5	V	I_C=10mA , I_B=1mA
DC current transfer ratio	h_{FE}	82	—	270	—	V_{CE}/I_C=10V/10mA
Transition frequency	fT	—	20	—	MHz	V_{CE}=10V , I_E=−10mA , f=10MHz
Output capacitance	Cob	—	7	—	pF	V_{CB}=10V , I_E=0A , f=1MHz
Turn-on time	ton	—	1	—	μs	I_C=100mA
Storage time	tstg	—	5.5	—	μs	I_{B1}=−I_{B2}=10mA
Fall time	tf	—	1.7	—	μs	V_{CC}≒−150V

(96-178-C300)