

SILICON POWER TRANSISTOR 2SA1645, 2SA1645-Z

PNP SILICON EPITAXIAL TRANSISTOR FOR HIGH-SPEED SWITCHING

The 2SA1645 is a mold power transistor developed for highspeed switching and features a very low collector-to-emitter saturation voltage. This transistor is ideal for use in switching power supplies, DC/DC converters, motor drivers, solenoid drivers, and other low-voltage power supply devices, as well as for highcurrent switching.

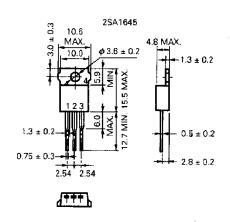
FEATURES

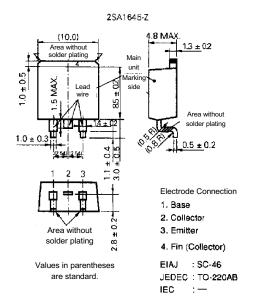
- · Fast switching speed
- Low collector-to-emitter saturation voltage:
 V_{CE(sat)} = -0.3 V MAX. @ Ic = -4 A

ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)

Parameter	Symbol	Conditions	Ratings	Unit
Collector to base voltage	Vсво		-150	٧
Collector to emitter voltage	VCEO		-100	٧
Emitter to base voltage	VEBO		-7.0	٧
Collector current	I _{D(DC)}		-7.0	Α
Collector current	IC(pulse)	PW ≤ 300 μs, Duty Cycle ≤ 10%	-14	Α
Base current	I _{B(DC)}		-3.5	Α
Total power dissipation	Рт	Tc = 25 °C	35	W
Total power dissipation	Рт	Ta = 25 °C	1.5	W
Junction temperature	Tj		150	°C
Storage temperature	Tstg		–55 to +150	°C

PACKAGE DRAWING (UNIT: mm)





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ELECTRICAL CHARACTERISTICS (Ta = 25°C)

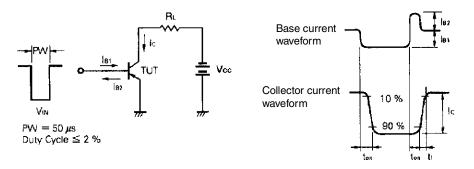
Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Collector cutoff current	Ісво	$V_{CB} = -100 \text{ V}, I_E = 0$			-10	μΑ
Emitter cutoff current	ІЕВО	$V_{EB} = -5 \text{ V, Ic} = 0$			-10	μΑ
DC current gain	h _{FE1} *	$V_{CE} = -2 \text{ V, Ic} = -0.5 \text{ A}$	100			-
DC current gain	h _{FE2} *	$V_{CE} = -2 \text{ V, Ic} = -1.5 \text{ A}$	100		400	-
DC current gain	h _{FE3} *	$V_{CE} = -2 \text{ V, Ic} = -4 \text{ A}$	60			-
Collector saturation voltage	V _{CE(sat)1} *	Ic = -4 A, $IB = -0.2 A$			-0.3	V
Collector saturation voltage	V _{CE(sat)2} *	Ic = -6 A, $IB = -0.3 A$			-0.5	V
Base saturation voltage	V _{BE(sat)1} *	Ic = -4 A, $IB = -0.2 A$			-1.2	V
Base saturation voltage	V _{BE(sat)2} *	Ic = -6 A, $IB = -0.3 A$			-1.5	V
Gain bandwidth product	f⊤	$V_{CE} = -10 \text{ V}, \text{ Ic} = -1.5 \text{ A}$		150		MHz
Collector capacitance	Cob	$V_{CB} = -10 \text{ V}, I_E = 0, f = 1 \text{ MHz}$		150		pF
Turn-on time	ton	Ic = -4 A, I _{B1} = $-I_{B2}$ = -0.2 A, R _L = 12.5 Ω , V _{CC} = -50 V Refer to the test circuit.		0.3		μs
Storage time	t _{stg}			1.5		μs
Fall time	tf	neter to the test circuit.		0.4		μs

^{*} Pulse test PW \leq 350 μ s, duty cycle \leq 2%

hfe CLASSIFICATION

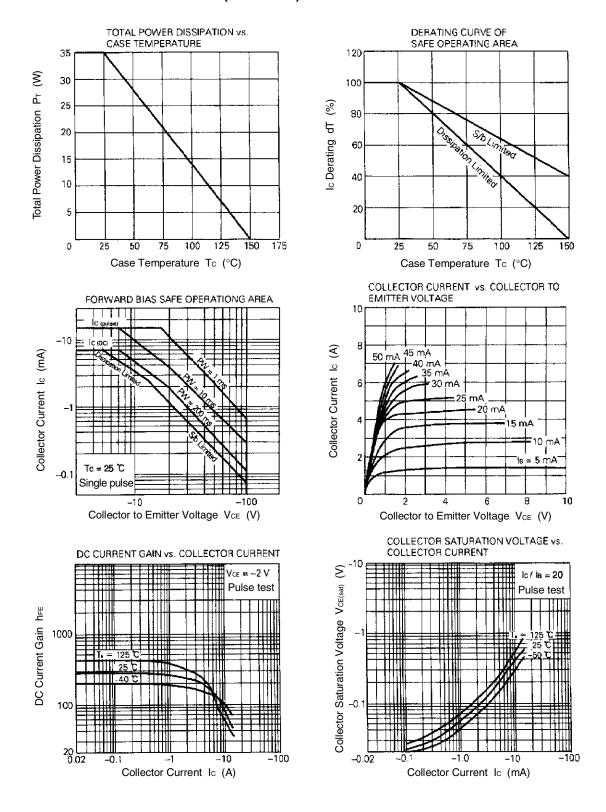
Marking	М	L	К	
h _{FE2}	100 to 200	150 to 300	200 to 400	

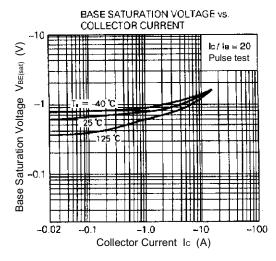
SWITCHING TIME TEST CIRCUIT

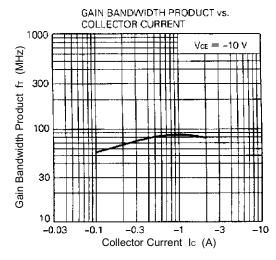


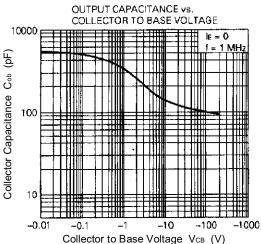


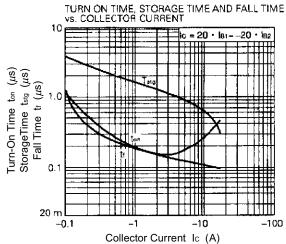
TYPICAL CHARACTERISTICS (Ta = 25°C)













[MEMO]

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