



## NPN Silicon Epitaxial Planar Transistor

## 2SD1766

### FEATURES

- Low saturation voltage:  $V_{CE(sat)}=0.5V(\text{Typ.})$
- $P_C=0.5W$ (Mounted on ceramic substrate)
- Small flat package.
- Complementary pair with 2SB1188.

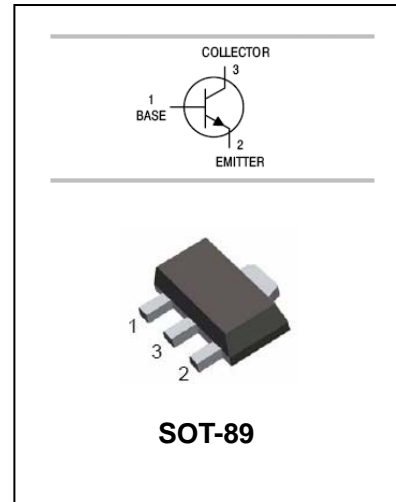


Lead-free

### APPLICATIONS

- Power amplifier application.

### ORDERING INFORMATION



Type No.	Marking	Package Code
2SD1766	DBP/DBQ/DBR	SOT-89

### MAXIMUM RATING @ $T_a=25^\circ\text{C}$ unless otherwise specified

Symbol	Parameter	Value	Units
$V_{CBO}$	Collector-Base Voltage	40	V
$V_{CEO}$	Collector-Emitter Voltage	32	V
$V_{EBO}$	Emitter-Base Voltage	5	V
$I_C$	Collector Current -Continuous	2	A
$P_C$	Collector Dissipation	500	mW
$T_j, T_{stg}$	Junction and Storage Temperature	-55 to +150	$^\circ\text{C}$



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**ELECTRICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified**

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=50\mu A, I_E=0$	40			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=1mA, I_B=0$	32			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=50\mu A, I_C=0$	5			V
Collector cut-off current	$I_{CBO}$	$V_{CB}=20V, I_E=0$			1	$\mu A$
Emitter cut-off current	$I_{EBO}$	$V_{EB}=4V, I_C=0$			1	$\mu A$
DC current gain	$h_{FE}$	$V_{CE}=3V, I_C=500mA$	82		390	
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=2A, I_B=200mA$		0.5	0.8	V
Transition frequency	$f_T$	$V_{CE}=5V, I_E=50mA,$ $f=100MHz$		100		MHz
Collector output capacitance	$C_{ob}$	$V_{CB}=10V, I_E=0, f=1MHz$		30		pF

**CLASSIFICATION OF  $h_{FE}$**

Rank	P	Q	R
Range	82-180	120-270	180-390
MARKING	DBP	DBQ	DBR



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TYPICAL CHARACTERISTICS @  $T_a=25^\circ\text{C}$  unless otherwise specified

Fig. 1  $P_C - T_a$

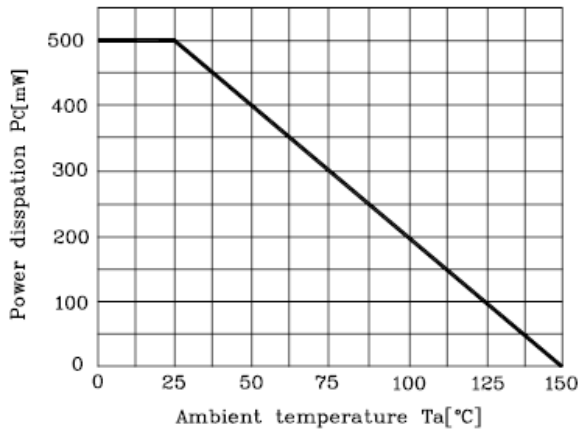


Fig. 2  $I_C - V_{BE}$

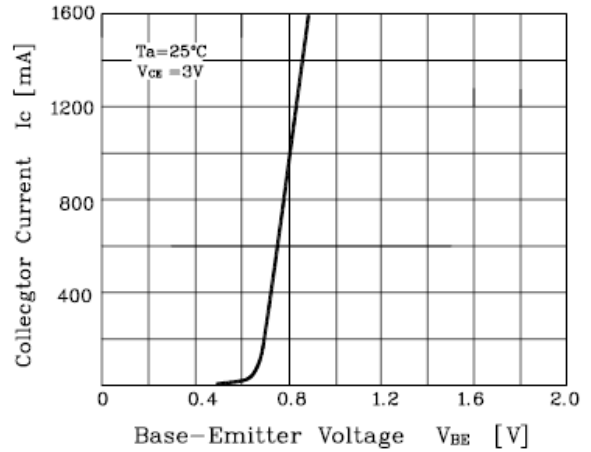


Fig. 3  $I_C - V_{CE}$

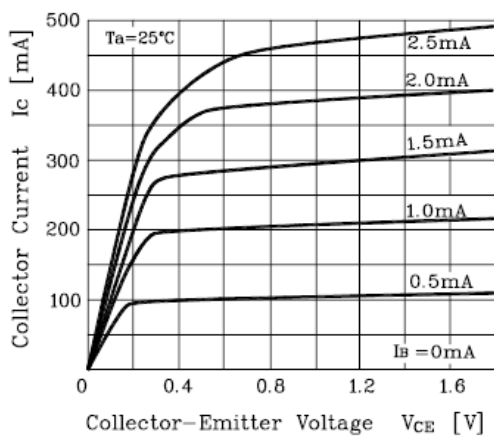
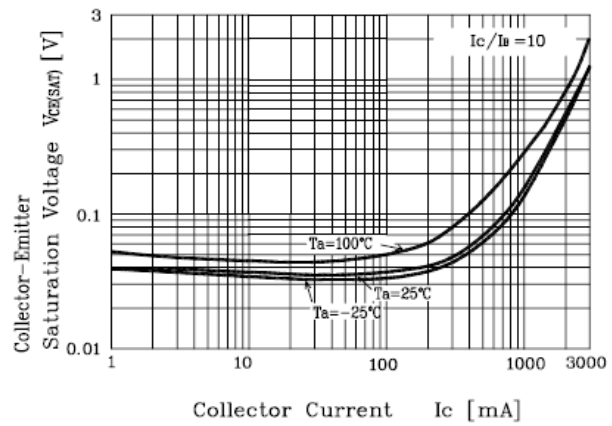


Fig. 4  $V_{CE(sat)} - I_C$





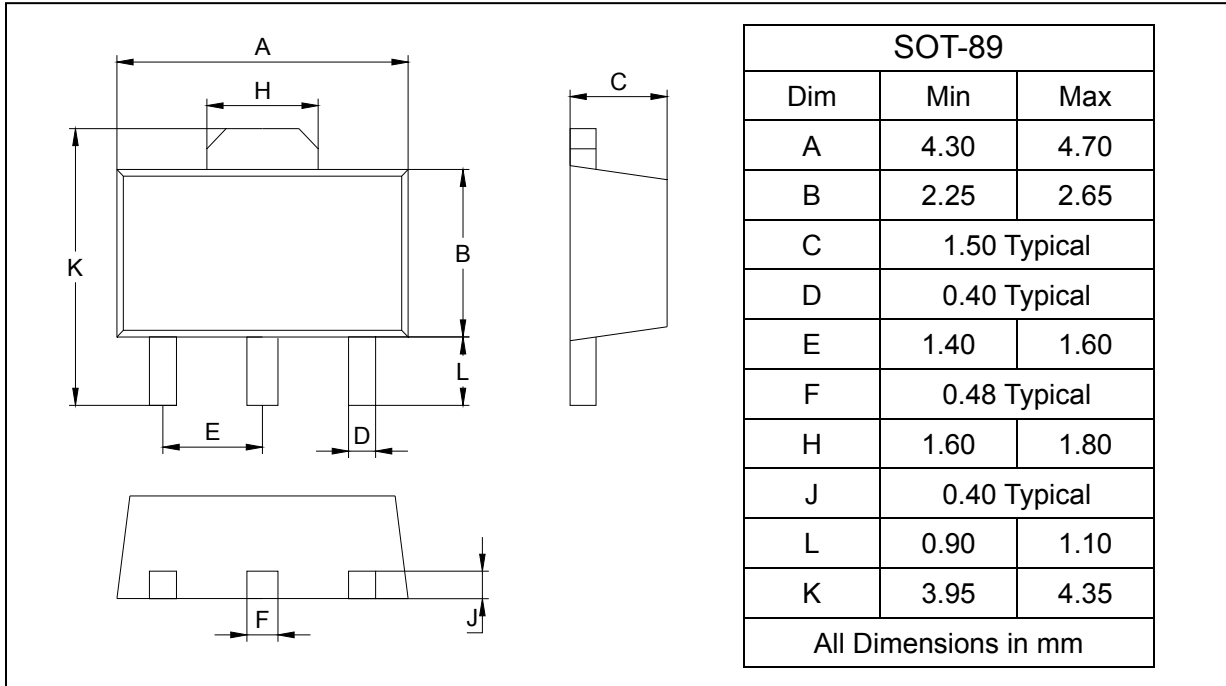
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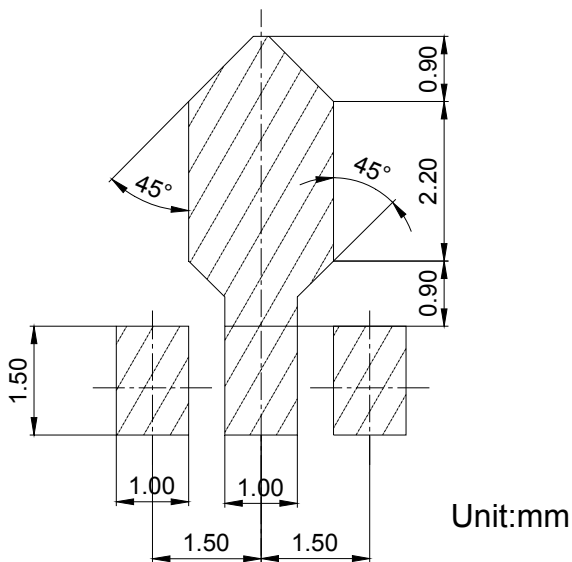
**PACKAGE OUTLINE**

Plastic surface mounted package

SOT-89



**SOLDERING FOOTPRINT**



**PACKAGE INFORMATION**

Device	Package	Shipping
2SD1766	SOT-89	1000/Tape&Reel