

## 2SD2413 TRANSISTOR (NPN)

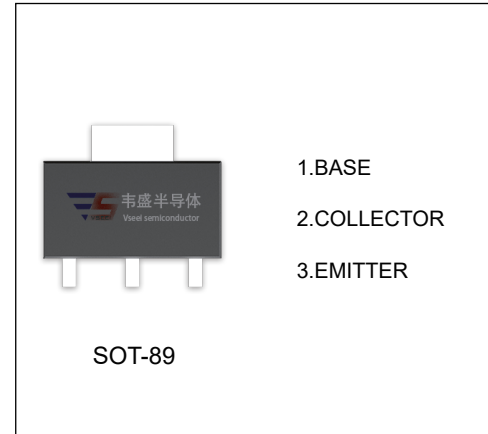
### FEATURES

- High collector to base voltage  $V_{CBO}$
- High collector to emitter voltage  $V_{CEO}$
- Large collector power dissipation  $P_C$
- Low collector to emitter saturation voltage  $V_{CE(sat)}$

Marking:1S

### MAXIMUM RATINGS ( $T_a=25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Value	Unit
$V_{CBO}$	Collector-Base Voltage	400	V
$V_{CEO}$	Collector-Emitter Voltage	400	V
$V_{EBO}$	Emitter-Base Voltage	5	V
$I_C$	Collector Current -Continuous	100	mA
$P_C$	Collector Power Dissipation	500	mW
$T_J, T_{stg}$	Operation Junction and Storage Temperature Range	-55~150	$^\circ\text{C}$



### ELECTRICAL CHARACTERISTICS ( $T_a=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=100\mu\text{A}, I_E=0$	400			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=0.5\text{mA}, I_B=0$	400			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=100\mu\text{A}, I_C=0$	5			V
Collector cut-off current	$I_{CBO}$	$V_{CB}=400\text{V}, I_E=0$			50	$\mu\text{A}$
Emitter cut-off current	$I_{EBO}$	$V_{EB}=5\text{V}, I_C=0$			50	$\mu\text{A}$
DC current gain	$h_{FE}$	$V_{CE}=5\text{V}, I_C=30\text{mA}$	30			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=50\text{mA}, I_B=5\text{mA}$			1.5	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C=50\text{mA}, I_B=5\text{mA}$			1.5	V
Transition frequency	$f_T$	$V_{CE}=30\text{V}, I_C=20\text{mA}, f=200\text{MHz}$		40		MHz
Collector output capacitance	$C_{ob}$	$V_{CB} = 30\text{V}, I_E=0, f=1\text{MHz}$			7	pF