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**Transistors**

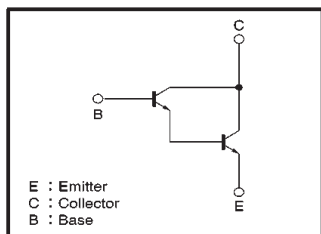
# High-gain Amplifier Transistor (32V, 0.3A)

2SD2142K / 2SC2062S

● **Features**

- 1) Darlington connection for a high  $h_{FE}$ .  
(DC current gain=5000 (Min.) at  $V_{CE}=3V$ ,  $I_C=0.1A$ )
- 2) High input impedance.

● **Circuit diagram**



● **Absolute maximum ratings (Ta=25°C)**

Parameter	Symbol	Limits	Unit
Collector-base voltage	$V_{CBO}$	40	V
Collector-emitter voltage	$V_{CEO}$	32	V
Emitter-base voltage	$V_{EBO}$	12	V
Collector current	$I_C$	0.3	A
Collector power dissipation	2SD2142K	0.2	W
	2SC2062S	0.3	
Junction temperature	$T_J$	150	°C
Storage temperature	$T_{stg}$	-55~+150	°C

● **Packaging specifications and  $h_{FE}$**

Type	2SD2142K	2SC2062S
Package	SMT3	SPT
$h_{FE}$	5k~	C
Code	T146	TP
Basic ordering unit (pieces)	3000	5000

● **Electrical characteristics (Ta=25°C)**

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	$BV_{CBO}$	40	—	—	V	$I_C=100 \mu A$
Collector-emitter breakdown voltage	$BV_{CEO}$	32	—	—	V	$I_C=10mA$
Emitter-base breakdown voltage	$BV_{EBO}$	12	—	—	V	$I_E=100 \mu A$
Collector cutoff current	$I_{CBO}$	—	—	0.1	$\mu A$	$V_{CB}=30V$
Emitter cutoff current	$I_{EBO}$	—	—	0.1	$\mu A$	$V_{EB}=12V$
DC current transfer ratio	$h_{FE}$	2SD2142K	5000	—	—	$V_{CE}/I_C=3V/0.1A$
		2SC2062S	10000	—	—	
Collector-emitter saturation voltage	$V_{CE(sat)}$	—	—	1.4	V	$I_C/I_B=200mA/0.2mA$
Transition frequency	$f_T$	—	200	—	MHz	$V_{CE}=5V$ , $I_E=-10mA$ , $f=100MHz$ *
Output capacitance	$C_{ob}$	—	2.5	—	pF	$V_{CB}=10V$ , $I_E=0A$ , $f=1MHz$

\* Transition frequency of the device.

(94L-570-D25)

# Low $V_{CE(sat)}$ Transistor (Strobes and DC/DC converters) (10V, 5A)

2SD2470

● **Features**

- 1) Low saturation voltage, typically  $V_{CE(sat)}=0.25V$  at  $I_C/I_B=3A/0.1A$ .
- 2) Collector current of 5A is possible.

● **Packaging specifications and  $h_{FE}$**

Type	2SD2470
Package	SPT
$h_{FE}$	270~820
Code	TP
Basic ordering unit (pieces)	5000

● **Absolute maximum ratings (Ta=25°C)**

Parameter	Symbol	Limits	Unit
Collector-base voltage	$V_{CBO}$	15	V
Collector-emitter voltage	$V_{CEO}$	10	V
Emitter-base voltage	$V_{EBO}$	10	V
Collector current	$I_C$	5	A (DC)
	$I_{CP}$	8	A (Pulse) *
Collector power dissipation	$P_C$	0.4	W
Junction temperature	$T_J$	150	°C
Storage temperature	$T_{stg}$	-55~+150	°C

\* Single pulse=10ms

● **Electrical characteristics (Ta=25°C)**

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	$BV_{CBO}$	10	—	—	V	$I_C=1mA$
Collector-emitter breakdown voltage	$BV_{CEO}$	15	—	—	V	$I_C=50 \mu A$
Emitter-base breakdown voltage	$BV_{EBO}$	10	—	—	V	$I_E=50 \mu A$
Collector cutoff current	$I_{CBO}$	—	—	0.1	$\mu A$	$V_{CB}=10V$
Emitter cutoff current	$I_{EBO}$	—	—	0.5	$\mu A$	$V_{EB}=8V$
Collector-emitter saturation voltage	$V_{CE(sat)}$	—	0.25	0.5	V	$I_C/I_B=3/0.1A$
DC current transfer ratio	$h_{FE}$	270	—	820	—	$V_{CE}=2V$ , $I_C=2A$
Transition frequency	$f_T$	—	170	—	MHz	$V_{CE}=6V$ , $I_E=0.05A$ , $f=100MHz$
Output capacitance	$C_{ob}$	—	30	—	pF	$V_{CB}=10V$ , $I_E=0A$ , $f=1MHz$

(SPEC-D230)