

# Chroma Amplifier Transistor (300V, 0.1A)

2SC4061K / 2SC3415S / 2SC4015 / 2SC3271F

**●Features**

- 1) High breakdown voltage. ( $V_{CE0}=300V$ )
- 2) Low collector output capacitance, typically 3pF at  $V_{CB}=30V$ .
- 3) Ideal for chroma circuit.

**●Packaging specifications and hFE**

Type	2SC4061K	2SC3415S	2SC4015	2SC3271F
Package	SMT3	SPT	ATV	TO-126F
hFE	NP	NP	N	N
Marking	AN*	—	—	—
Code	T146	TP	TV2	—
Basic ordering unit (pieces)	3000	5000	2500	1000

\* Denotes hFE

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	$BV_{CBO}$	300	—	—	V	$I_C=50\mu A$
Collector-emitter breakdown voltage	$BV_{CEO}$	300	—	—	V	$I_C=100\mu A$
Emitter-base breakdown voltage	$BV_{EBO}$	5	—	—	V	$I_E=50\mu A$
Collector cutoff current	$I_{CBO}$	—	—	0.5	$\mu A$	$V_{CB}=200V$
Emitter cutoff current	$I_{EBO}$	—	—	0.5	$\mu A$	$V_{EB}=4V$
Collector-emitter saturation voltage	$V_{CE(sat)}$	—	—	2	V	$I_C/I_E=50mA/5mA$
DC current transfer ratio	hFE	56	—	180	—	$V_{CE}/I_C=10V/10mA$
Gain bandwidth product	$f_T$	50	100	—	MHz	$V_{CE}=30V, I_E=-10mA, f=100MHz$
Collector output capacitance	$C_{ob}$	—	3	—	pF	$V_{CB}=30V, I_E=0A, f=1MHz$

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

Parameter	Symbol	Limits	Unit
Collector-base voltage	$V_{CBO}$	300	V
Collector-emitter voltage	$V_{CEO}$	300	V
Emitter-base voltage	$V_{EBO}$	5	V
Collector current	$I_C$	100	mA
Collector power dissipation	2SC4061K	0.2	W
	2SC3415S	0.3	
	2SC4015	1 *	
	2SC3271F	5	
Junction temperature	$T_J$	150	°C
Storage temperature	$T_{stg}$	-55~+150	°C

\* When  $t = 1.7mm$  and the foil collector area on the PC board is  $100mm^2$  or greater.

(96-172-C52)

# High-voltage Switching Transistor (400V, 5A)

2SC4938 / 2SC4129

**●Features**

- 1) Low saturation voltage, typically  $V_{CE(sat)}=0.6V$  at  $I_C/I_E=5A/1A$ .
- 2) High switching speed, typically  $t_f=1\mu s$  at  $I_C=4A$ .
- 3) Wide SOA (safe operating area).

**●Packaging specifications and hFE**

Type	2SC4938	2SC4129
Package	PSD3	TO-220FP
hFE	B	AB
Code	TL	—
Basic ordering unit (pieces)	1000	500

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	$BV_{CBO}$	400	—	—	V	$I_C=50\mu A$
Collector-emitter breakdown voltage	$BV_{CEO}$	400	—	—	V	$I_C=1mA$
Emitter-base breakdown voltage	$BV_{EBO}$	7	—	—	V	$I_E=50\mu A$
Collector cutoff current	$I_{CBO}$	—	—	10	$\mu A$	$V_{CB}=400V$
Emitter cutoff current	$I_{EBO}$	—	—	10	$\mu A$	$V_{EB}=5V$
Collector-emitter saturation voltage	$V_{CE(sat)}$	—	—	1	V	$I_C/I_E=5A/1A$ *
Base-emitter saturation voltage	$V_{BE(sat)}$	—	—	1.5	V	$I_C/I_E=5A/1A$ *
DC current transfer ratio	2SC4938	25	—	50	—	$V_{CE}/I_C=5V/2A$
	2SC4129	16	—	50	—	
Transition frequency	$f_T$	—	15	—	MHz	$V_{CB}=10V, I_E=-0.5A, f=5MHz$ *
Output capacitance	$C_{ob}$	—	80	—	pF	$V_{CB}=10V, I_E=0A, f=1MHz$
Turn-on time	$t_{on}$	—	—	1	$\mu s$	$I_C=4A, R_L=50\Omega$
Storage time	$t_{stg}$	—	—	2.5	$\mu s$	$I_{B1}=-I_{B2}=0.4A$
Fall time	$t_f$	—	—	1	$\mu s$	$V_{CC}\approx 200V$

\* Measured using pulse current.

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

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	$I_C$	5	A
	$I_{CP}$	7	A *
Collector power dissipation	2SC4938	1.5	W
	2SC4129	35	
		30	
Junction temperature	$T_J$	150	°C
Storage temperature	$T_{stg}$	-55~+150	°C

\* Single pulse,  $P_w=100ms$ .

(96-188-C55)