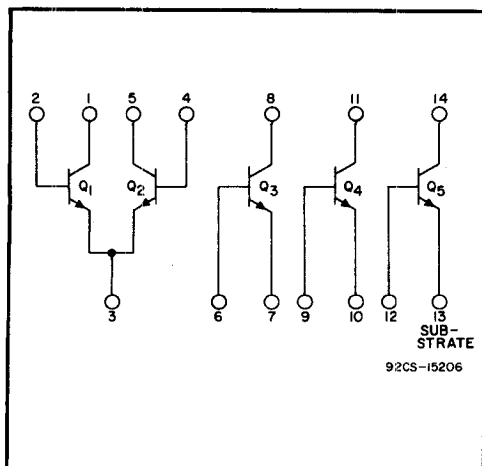


### Three Individual Transistors and One Differentially-Connected Transistor Pair

CA3045, CA3146  
CA3046, CA3146A  
CA3086



**Applications and Features**

For low-power requirements at frequencies from dc through the vhf range  
Custom-designed differential amplifiers  
Temperature-compensated amplifiers

The CA3086 is similar to the CA3046 except as indicated in chart below and its transistors are non-matched.  
Frequency range: from dc to 120MHz  
Five general-purpose monolithic transistors  
Matched transistor pair (CA3045, CA3046, CA3146,A)  
Wide operating-current range

**Maximum Ratings at  $T_A=25^{\circ}C$**

The following ratings apply for each transistor in the array:

Package	Suffix	$T_A$ ( $^{\circ}C$ )
14-Lead DIP (CA3146,A)	E**	-55 to 125
14-Lead DIC	None	
14-Lead Frit Seal (CA3045, CA3086)	F	
Beam Lead (CA3045)	L	Page 59
Chip (CA3045, CA3146)	H	Page 59

	CA3045 CA3046	CA3146	CA3146A	CA3086	
Collector-to-Emitter Voltage	15	30	40	15	V max.
Collector-to-Base Voltage	20	40	50	20	V max.
Collector-to-Substrate* Voltage	20	40	50	20	V max.
Emitter-to-Base Voltage	5	5	5	5	V max.
Collector Current	50	50	50	50	mA max.
Power Dissipation	300	300	300	300	mW max.
DC Forward-Current Transfer Ratio ( $I_C = 1$ mA)	40	30	30	40	min.
Collector Cutoff Current ( $I_{CBO}$ )	40	100	100	100	nA max.
Collector Cutoff Current ( $I_{CEO}$ )	0.5	5	5	5	$\mu$ A max.
Gain Bandwidth Product	300	300	300	550 typ.	MHz min.

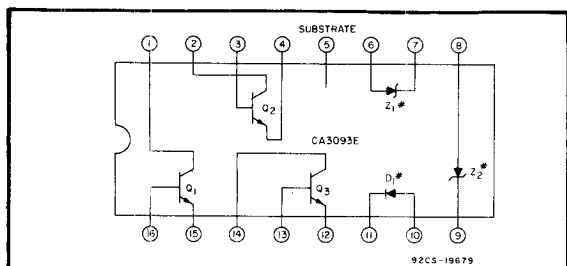
File Nos. 341, 483, 532; ICAN No. 5296\*

\*\*No suffix for CA3046, CA3086

\*The collector of each transistor is isolated from the substrate by an integral diode.

### General-Purpose High-Current n-p-n Transistor, Zener-Diode, Diode Array

CA3093



Package	Suffix	$T_A$ ( $^{\circ}C$ )
16-Lead DIP	E	-55 to 125
Chip	H	

File No. 533\*

**Applications and Features**

**Zener Diodes**

Two 1/4W Zeners  
 $V_Z = 7V \pm 10\%$  at  $I_Z = 10$  mA  
 $Z_Z = 15\Omega$  typ at  $I_Z = 10$  mA  
 $\Delta V_Z / \Delta T = 0.05\%/^{\circ}C$  or  $3.6$  mV/ $^{\circ}C$  typ.

**Diode**

Close forward voltage match of  $V_{BE}$ 's of  $Q_1$  and  $Q_2$   $V_{PIV} = 5.5V$  min

Signal processing and switching systems operating from dc to vhf  
Lamp and relay driver  
Differential amplifier  
Temperature-compensated amplifier  
Thyristor firing

**Transistors**

High  $I_C$  (100mA max.)  
Matched pair ( $Q_1$  &  $Q_2$ )  
 $V_{IO} = \pm 5mV$  max  
 $I_{IO} = 2.5 \mu A$  max } at  $I_C = 1$  mA

$\Delta V_{IO} / \Delta T = 5 \mu V / ^{\circ}C$  typ

$h_{FE} = 40$  min @  $I_C = 10$  mA or 50 mA  
Low  $V_{CEsat}$  . . . 0.7V max @ 50 mA

**Maximum Ratings at  $T_A = 25^{\circ}C$**

for each transistor

Collector-to-Emitter Voltage ( $V_{CEO}$ )	15 V
Collector-to-Base Voltage ( $V_{CBO}$ )	20 V
Collector-to-Substrate Voltage ( $V_{CISO}$ )*	20 V
Emitter-to-Base Voltage ( $V_{EBO}$ )	5.5V
Collector Current ( $I_C$ )	100 mA
Base Current ( $I_B$ )	35 mA

for each zener diode or diode

Zener Diode dc Current ( $I_Z$ )	35 mA
Zener Diode-to-Substrate Voltage ( $V_{ZIO}$ )*	20 V
Diode (D1) Forward Current ( $I_{DF}$ )	50 mA
Diode (D1) Reverse Voltage ( $V_{DR}$ )	5.5 V
Diode (D1)-to-Substrate Voltage ( $V_{DIO}$ )*	20 V

\*Refer to indicated File No. for data bulletin and where given to indicated ICAN No. for application note.