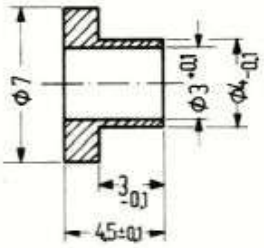
Not for new development

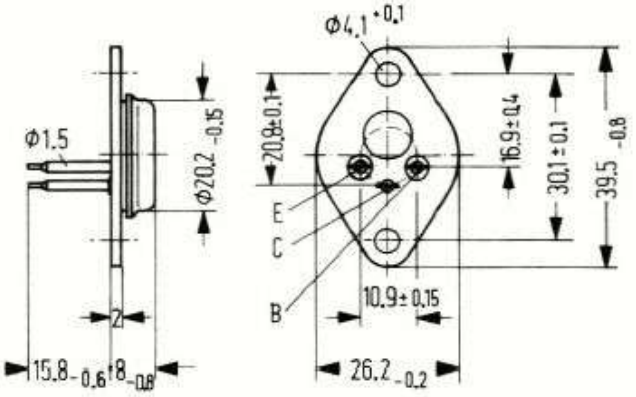
For AF power stages and switching applications

AD 133 is a germanium PNP alloyed transistor in the case 3 C 3 DIN 41872 (similar to TO–41). The collector is electrically connected to the case.
For insulated mounting of this transistor on a chassis, insulating nipple and mica disc are provided for. These parts have to be ordered separately.
AD 133 is designed for use in AF output power stages and as a switch for high loads.

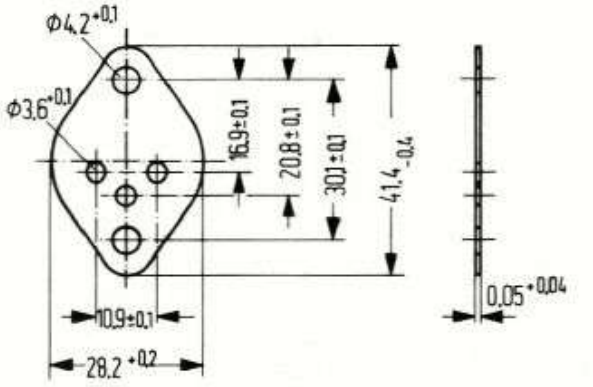
Type	Order number
AD 133 III	Q60104–C133
AD 133 IV	Q60104–D133
AD 133 V	Q60104–E133
Insulating nipple	Q62901–B13–B
Mica disc	Q62901–B13–A



Insulating nipple
Scale 2 : 1



Weight approx. 17 g Dimensions in mm



Mica disc greased on both sides R_{th} = 0.35 K/W
dry on both sides R_{th} = 1.25 K/W

Maximum ratings

Collector-emitter voltage ($-I_C$ = 2 A)	$-V_{CEO}$	32	V
Collector-emitter voltage ($I_C = I_{Cmax}$)	$-V_{CEO}$	20	V
Collector-emitter voltage ($V_{BE} \geqq 1$ V)	$-V_{CEV}$	50	V
Collector-base voltage	$-V_{CBO}$	50	V
Emitter-base voltage	$-V_{EBO}$	10	V
Collector current	$-I_C$	15	A
Base current	$-I_B$	2	A
Junction temperature	T_j	100	°C
Storage temperature	T_S	–55 to +90	°C
Total power dissipation	P_{tot}	36	W
Thermal resistance			
Junction to case	$R_{thJcase}$	$\leqq$ 1.5	K/W

Not for new development

Static characteristics (T_{case} = 25 °C)

The transistors AD 133 are classified in groups of static forward current transfer ratio h_{FE} at $-I_C$ = 5 A and denoted by Roman numerals. The following values apply at a collector-emitter voltage of $-V_{CE}$ = 0.5 V and the following collector currents.

h_{FE} group	III	IV	V		
$-I_C$ A	h_{FE} I_C/I_B	h_{FE} I_C/I_B	h_{FE} I_C/I_B	$-V_{BE}$ V	$-V_{CEsat}$ V
0.5	50	75	125	0.3 (< 0.5)	–
5	30 (20 to 40)	45 (30 to 60)	75 (50 to 100)	0.55 (< 0.95)	–
15	17	25	42	0.8 (< 1.5)	–
15	–	–	–	–	0.3 (< 0.5)[1])
15	–	–	–	–	0.35 (< 0.5)[2])

	T_{case}	90	25	°C
Collector-emitter cutoff current ($-V_{CEV}$ = 50 V; $V_{BE} \geqq 1$ V)	$-I_{CEV}$	3 (< 10)	< 1	mA
Emitter-base cutoff current ($-V_{EBO}$ = 10 V)	$-I_{EBO}$	3 (< 10)	< 1	mA
Collector-emitter breakdown voltage ($-I_{CEO}$ = 2 A)	$-V_{(BR)\,CEO}$	32	32	V
Collector-emitter breakdown voltage ($-I_{CEO}$ = 15 A)	$-V_{(BR)\,CEO}$	20	20	V

Dynamic characteristics (T_{case} = 25 °C)

Operating point: $-I_C$ = 0.5 A; $-V_{CE}$ = 6 V

Cutoff frequency in common-emitter circuit	f_β	8	kHz
Current gain-bandwidth product	f_T	300	kHz

Switching times

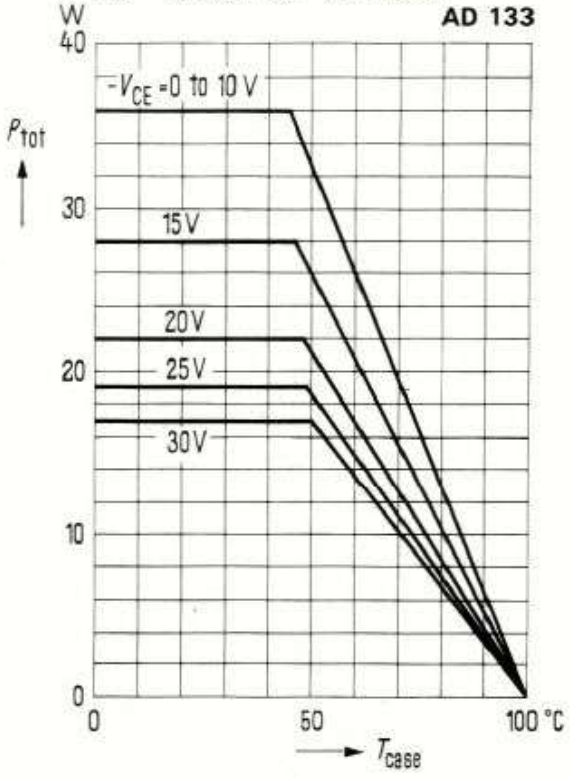
At an overdriving factor of ü = 1.5 to 3 and a "switch off" base current of I_{B2} = 100 mA ($-I_C$ = 5 A) the following switching times apply:	t_{on}	12 (< 25)	µs
	t_s	8 (< 15)	µs
	t_f	10 (< 25)	µs

[1]) The transistor is overdriven to such a degree that the static forward current transfer ratio h_{FE} has decreased to a value of h_{FE} = 10

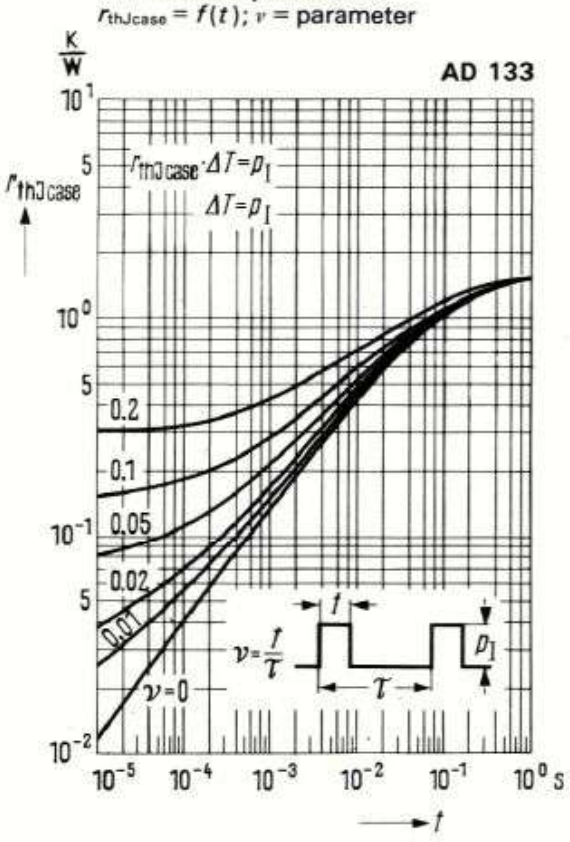
[2]) ($-I_C$ = 15 A for the characteristic curve which, at constant base current passes, through the operating point $-I_C$ = 16.5 A; $-V_{CE}$ = 0.5 V)

Not for new development

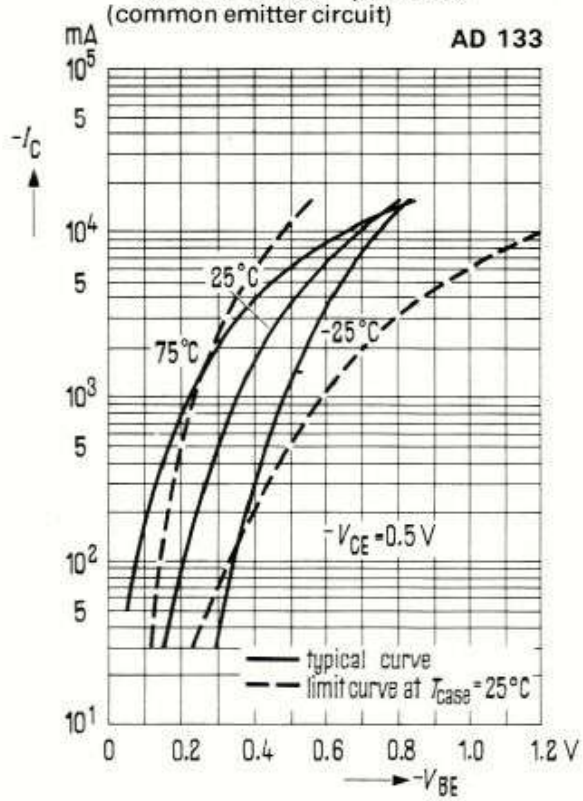
Permissible total power dissipation versus temperature
$P_{tot} = f(T_{case})$; V_{CE} = parameter



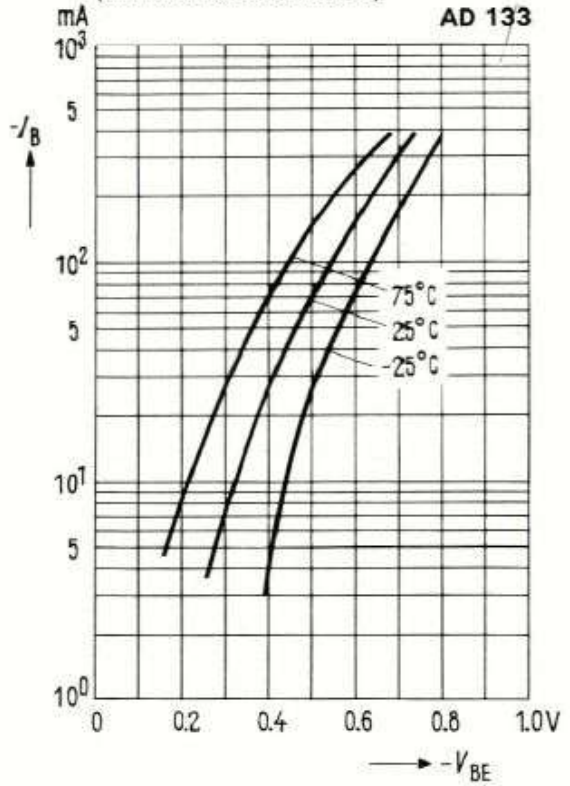
Permissible pulse load
$r_{thJcase} = f(t)$; ν = parameter



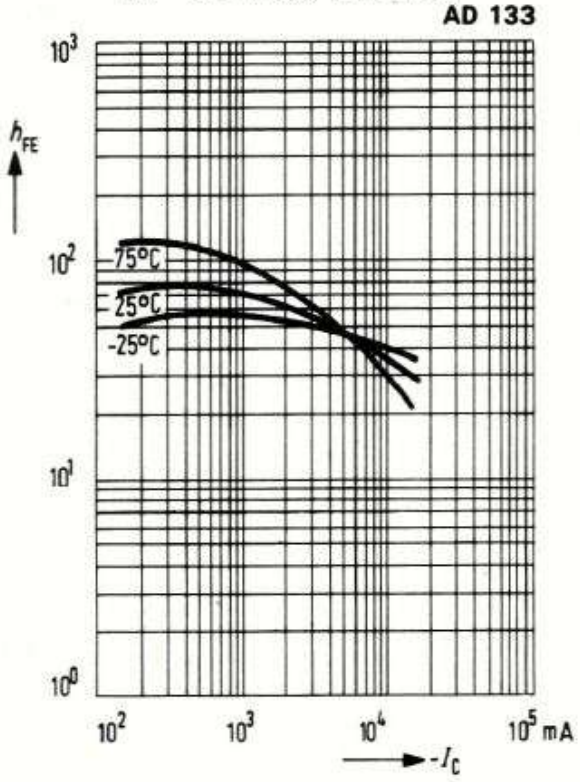
Collector current $I_C = f(V_{BE})$
$-V_{CE}$ = 0.5 V; T_{case} = parameter
(common emitter circuit)



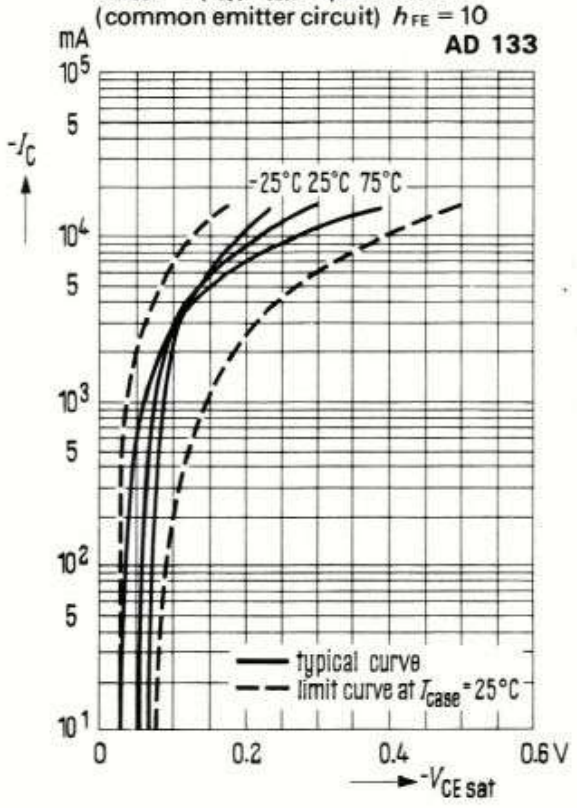
Input characteristics $I_B = f(V_{BE})$
$-V_{CE}$ = 0.5 V; T_{case} = parameter
(common emitter circuit)



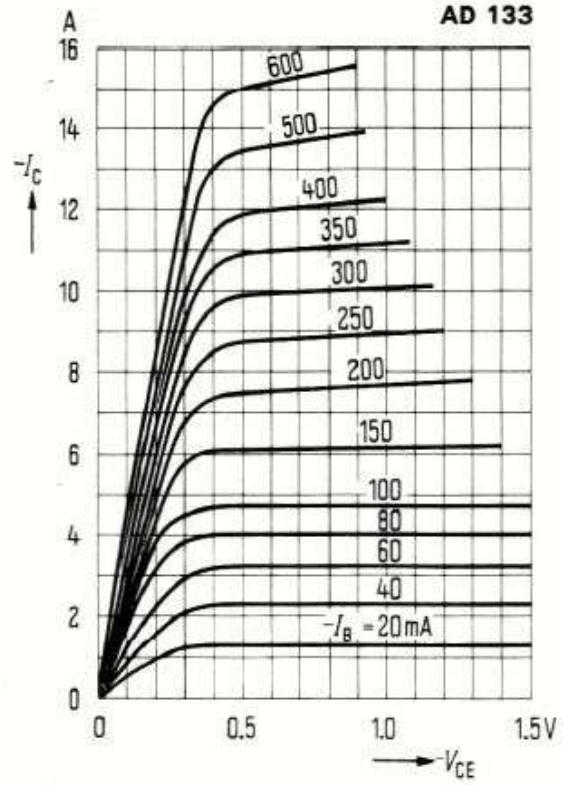
Static forward current transfer ratio $h_{FE} = f(I_C)$
$-V_{CE} = 0.5$ V; T_{case} = parameter



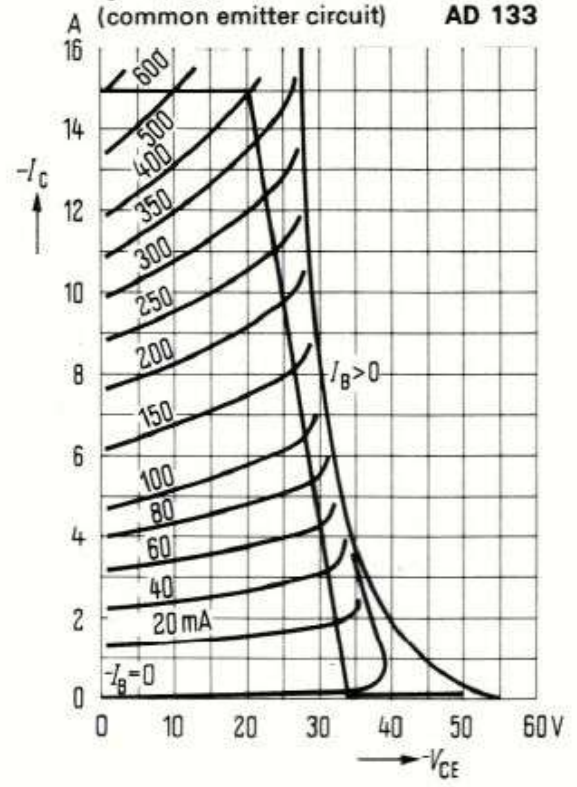
Saturation voltage
$V_{CEsat} = f(I_C)$; T_{case} = parameter
(common emitter circuit) $h_{FE} = 10$



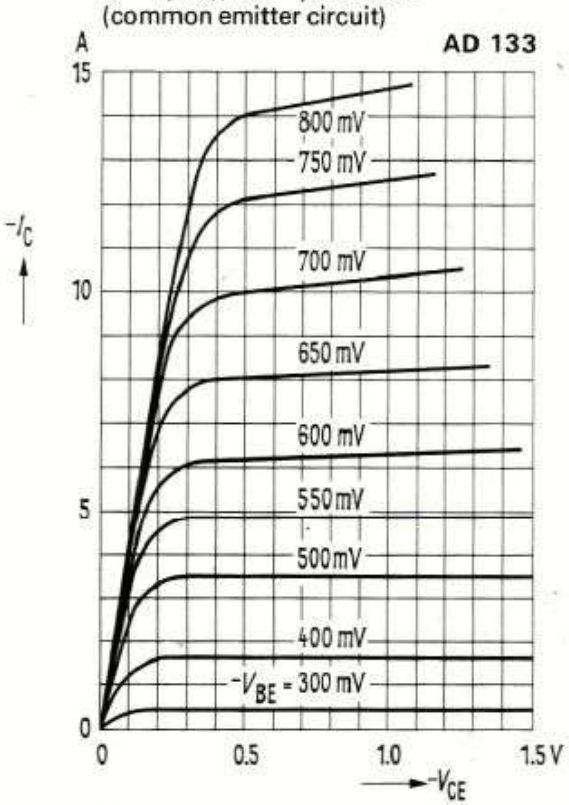
Output characteristics
$I_C = f(V_{CE})$; I_B = parameter
(common emitter circuit)



Output characteristics and limit curve for switch operation
$I_C = f(V_{CE})$;
(common emitter circuit)



Output characteristics
$I_C = f(V_{CE})$; V_{BE} = parameter
(common emitter circuit)



Temperature dependence of the cutoff current $I_{CBO} = f(T_{case})$
$-V_{CBO}$ = 50 V