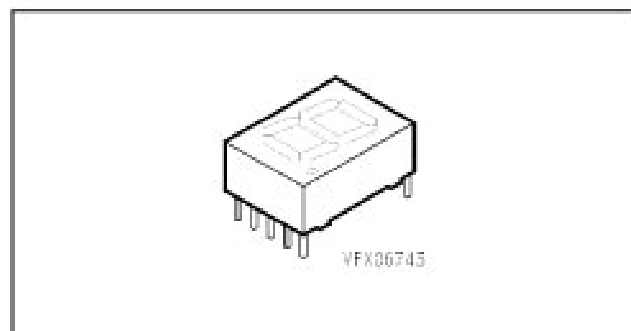


Seven Segment Display
13 mm (0.59")
Low Current Version

HDN 1131 O
HDN 1133 O

Features

- Excellent character appearance
- Evenly lighted segments
- Wide viewing angle $2\varphi = 50^\circ$
- Mitred corners on segments
- Grey package provides optimum contrast
- Low power consumption
- IC-compatible
- Right hand decimal



Type	Polarity	Color of emission	Luminous intensity/ Segment $I_F = 2 \text{ mA}$ $I_V (\mu\text{cd})$	Ordering code
HDN 1131 O	common anode	super-red	260 (typ.)	Q68000-A6433
HDN 1133 O	common cathode	super-red	260 (typ.)	Q68000-A6434

Maximum Ratings ($T_A = 25\text{ °C}$)

Description	Symbol	Value	Unit
Operating temperature range	T_{op}	0 ... + 85	°C
Storage temperature range	T_{stg}	– 40 ... + 85	°C
Lead soldering temperature, 2 mm from base	T_S	260	°C for 3 s
Forward surge current per segment or DP ¹⁾ $t_p \leq 10\text{ }\mu\text{s}$	I_{FM}	100	mA
DC forward current per segment or DP ²⁾	I_F	15	mA
Reverse voltage per segment or DP	V_R	6	V
Total power dissipation per segment or DP ²⁾	P_{tot}	320	mW

1) Do not exceed maximum average current per segment (see graph of the peak forward current)

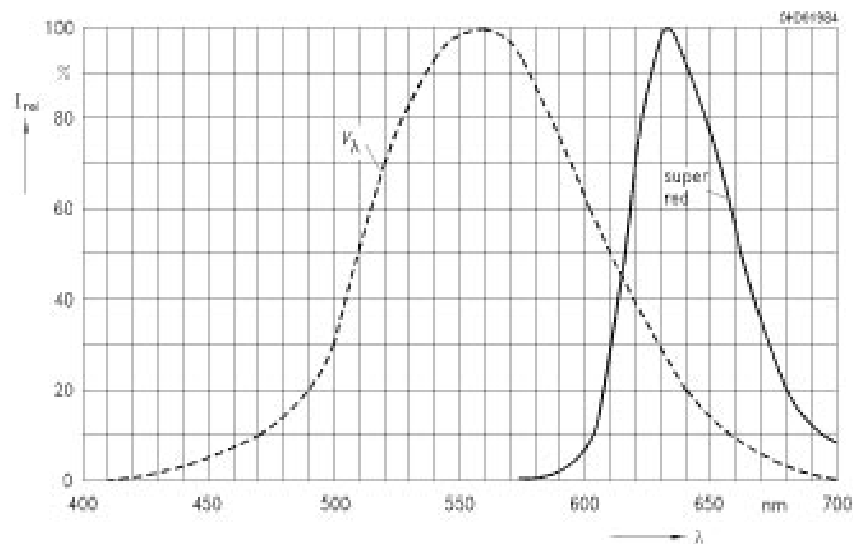
2) Derate maximum average current above $T_A = 75\text{ °C}$ at 0.5 mA/°C per segment

Characteristics ($T_A = 25\text{ °C}$)

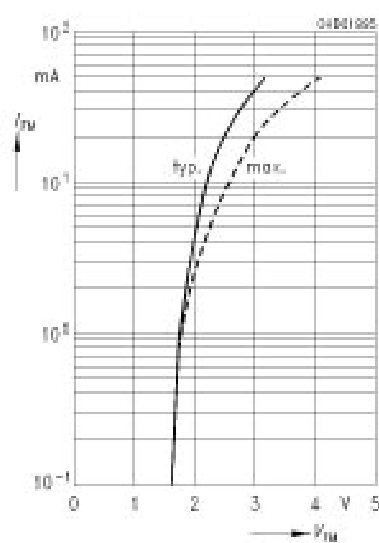
Parameter	Symbol	Values			Unit
		min	typ.	ma	
Luminous intensity per segment (Digit average)					
2 mA	I_V	180	260	-	μcd
5 mA	I_V	-	100	-	μcd
20 mA PK,1:4 Duty factor	I_V	-	0	-	μcd
Peak wavelength	λ_{peak}	-	635	-	nm
Dominant wavelength (Digit average)	λ_{dom}	612	-	625	nm
Forward voltage per segment or DP $I_F = 2\text{ mA}$	V_F	-	1.8	-	V
Break down voltage per Segment $I_R = 10\text{ }\mu\text{A}$	V_{BR}	6	15	-	V
Thermal resistance LED junction-to-pin	$R_{thJ-PIN}$	-	-	180	°C/W/Seg

Relative spectral emission $I_{rel} = f(\lambda)$

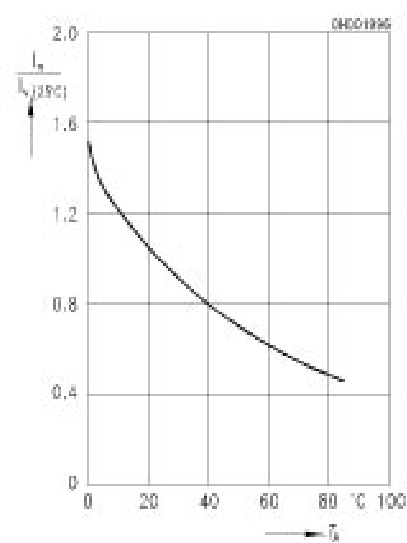
$V(\lambda)$ = Standard eye response curve



Peak forward current $I_{FM} = f(V_{FM})$
 $t_p / T = 0.001$, $t_p = 10 \mu s$, $T_A = 25^\circ C$

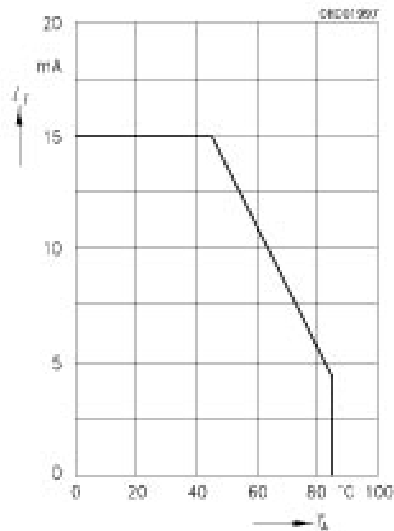


Rel. luminous intensity $I_v / I_v(25^\circ C) = f(T_A)$
 $I_F = 2 \text{ mA}$



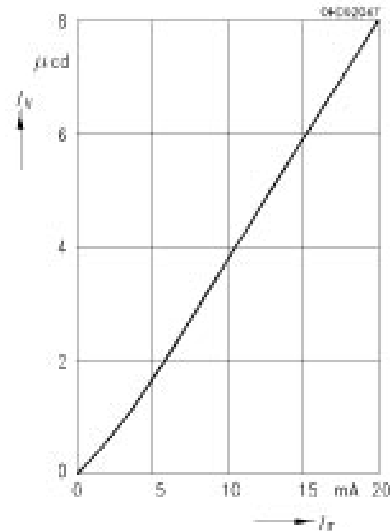
Max. permissible forward current

$$I_F = f(T_A)$$



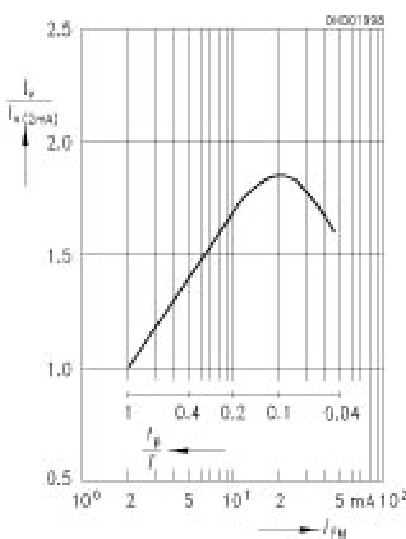
Luminous intensity $I_V = f(I_F)$

$$T_A = 25^\circ\text{C}$$



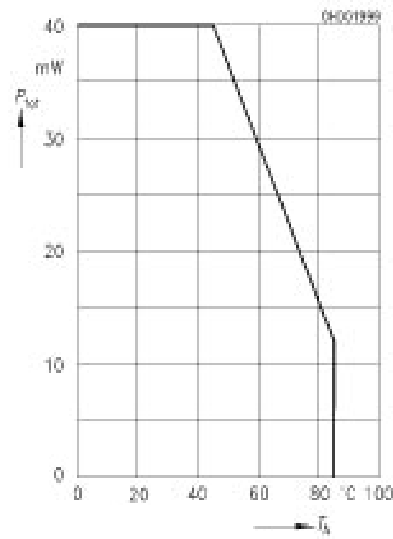
Relative efficiency $I_V/I_V(2\text{ mA}) = f(I_{FM})$

$$T_A = 25^\circ\text{C}$$

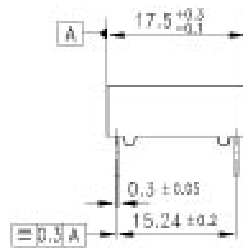
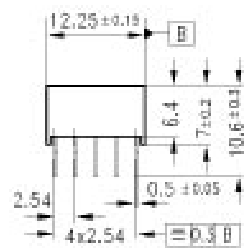


Total power dissipation per segment

$$P_{\text{tot}} = f(T_A)$$



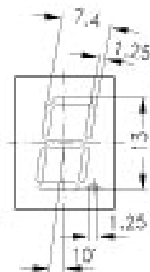
Package Outlines



HD 1131
HDN1131

e-1			10-g
d-2			9-i
A-3			8-A
c-4			7-a
dp-5			6-b

A=common anode



HD 1133
HDN1133

e-1			10-g
d-2			9-i
C-3			8-C
c-4			7-a
dp-5			6-b

C=common cathode



DP906743