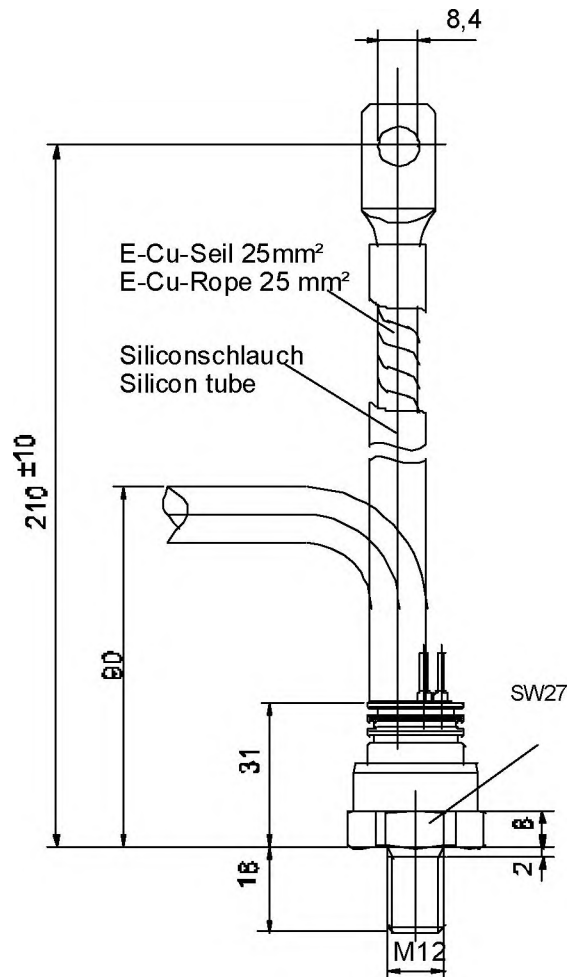
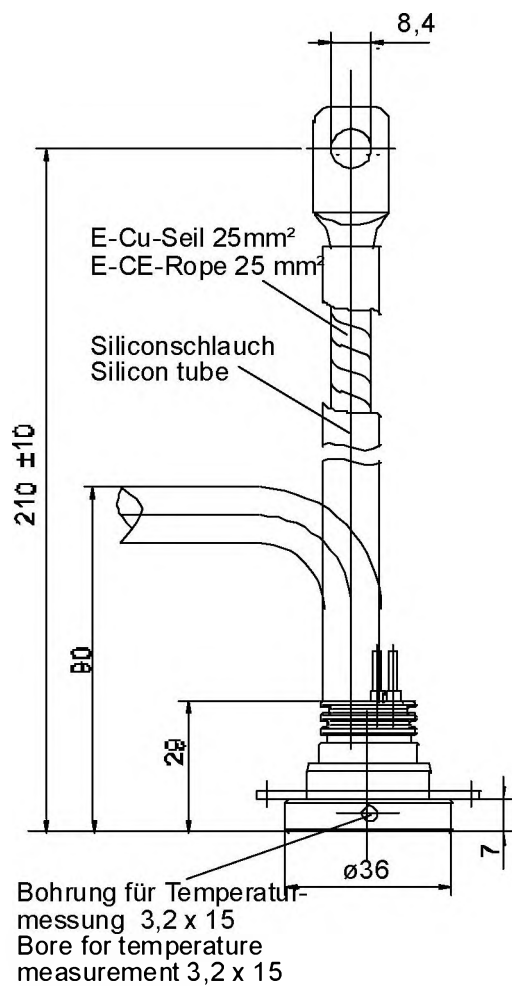


Marketing Information D 255 N



Typ Type	Schalt-symbol Circuit symbol	Kathode Cathode	Anode Anode	Schutzschlauch Prot. flex. tubing
N		Seil Rope	Gehäuse Case	rot red
K		Gehäuse Case	Seil Rope	blau blue

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N		Seil Rope	Gewinde Thread	rot red
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D 255 N

Elektrische Eigenschaften

Electrical properties

Höchstzulässige Werte

Maximum rated values

Periodische Spitzensperrspannung	repetitive peak reverse voltage	$t_{vj} = -40^{\circ}\text{C} \dots t_{vj\text{max}}$	V_{RRM}	200, 400 600, 800 *	V V
Stoßspitzensperrspannung	non-repetitive peak reverse voltage	$t_{vj} = +25^{\circ}\text{C} \dots t_{vj\text{max}}$	$V_{RSM} = V_{RRM}$	+ 50	V
Durchlaßstrom-Grenzeffektivwert	RMS forward current		I_{FRMSM}	400	A
Dauergrenzstrom	mean forward current	$t_c = 110^{\circ}\text{C}$ $t_c = 130^{\circ}\text{C}$	I_{FAVM}	255 202	A A
Stoßstrom-Grenzwert	surge forward current	$t_{vj} = 25^{\circ}\text{C}, t_p = 10\text{ms}$ $t_{vj} = t_{vj\text{max}}, t_p = 10\text{ms}$	I_{FSM}	5,8 4,6	kA kA
Grenzlastintegral	$I^2 t$ -value	$t_{vj} = 25^{\circ}\text{C}, t_p = 10\text{ms}$ $t_{vj} = t_{vj\text{max}}, t_p = 10\text{ms}$	$I^2 t$	168,2 105,8	kA^2s kA^2s

Charakteristische Werte

Characteristic values

Durchlaßspannung	on-state voltage	$t_{vj} = t_{vj\text{max}}, I_F = 800\text{A}$	V_T	max	1,4	V
Schleusenspannung	threshold voltage	$t_{vj} = t_{vj\text{max}}$	$V_{T(TO)}$		0,65	V
Ersatzwiderstand	slope resistance	$t_{vj} = t_{vj\text{max}}$	r_T		0,85	$\text{m}\Omega$
Sperrstrom	reverse current	$t_{vj} = t_{vj\text{max}}, V_R = V_{RRM}$	I_R	max	20	mA

Thermische Eigenschaften

Thermal properties

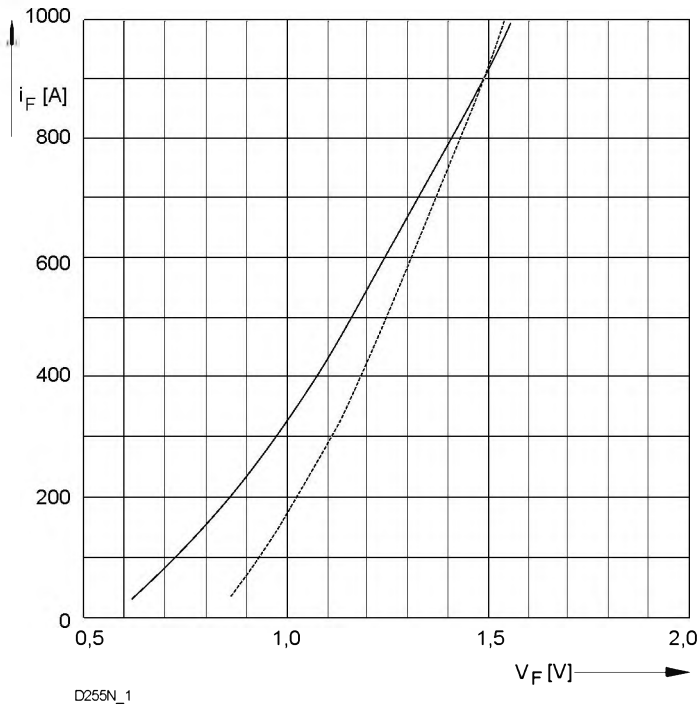
Innerer Widerstand	thermal resistance, junction	$\Theta = 180^{\circ}\text{sin}$	R_{thJC}	max	0,230	$^{\circ}\text{C}/\text{W}$
	to case	DC		max	0,225	$^{\circ}\text{C}/\text{W}$
Übergangs-Wärmewiderstand	thermal resistance, case to heatsink		R_{thCK}	max	0,04	$^{\circ}\text{C}/\text{W}$
Höchstzul. Sperrschichttemperatur	max. junction temperature		$t_{vj\text{max}}$		180	$^{\circ}\text{C}$
Betriebstemperatur	operating temperature		$t_{c\text{op}}$		-40...+180	$^{\circ}\text{C}$
Lagertemperatur	storage temperature		t_{slg}		-40...+180	$^{\circ}\text{C}$

Mechanische Eigenschaften

Mechanical properties

Si-Element mit Druckkontakt	Si-pellet with pressure contact	$\varnothing = 17\text{mm}$				
Anzugsdrehmoment	tightening torque	Gehäuseform/case design B	M1		20	Nm
Gewicht	weight		G	typ	175	g
Kriechstrecke	creepage distance				12	mm
Feuchteklasse	humidity classification	DIN 40040				C
Schwingfestigkeit	vibration resistance	$f = 50\text{Hz}$			50	m/s^2
Maßbild	outline					Seite/page
Polarität	polarity					Anode=Gehäuse/case

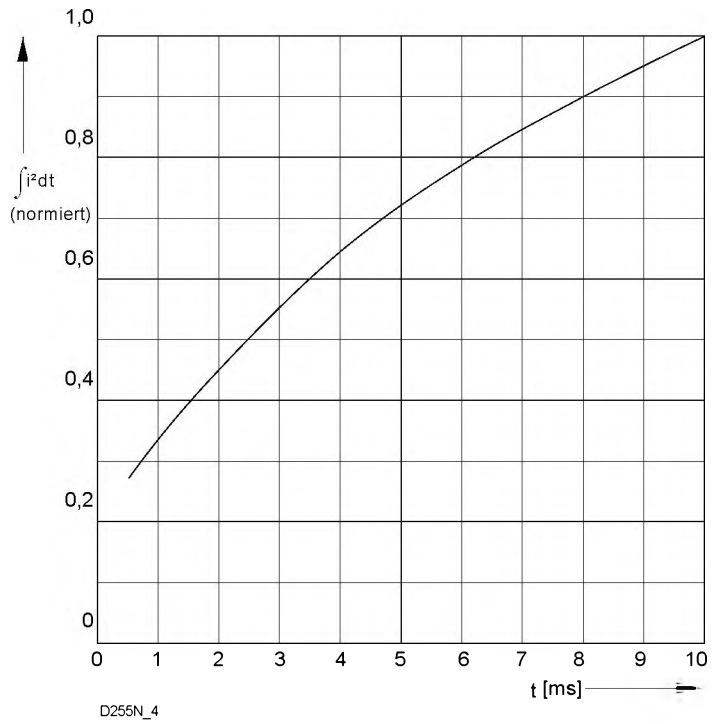
D255N



D255N_1

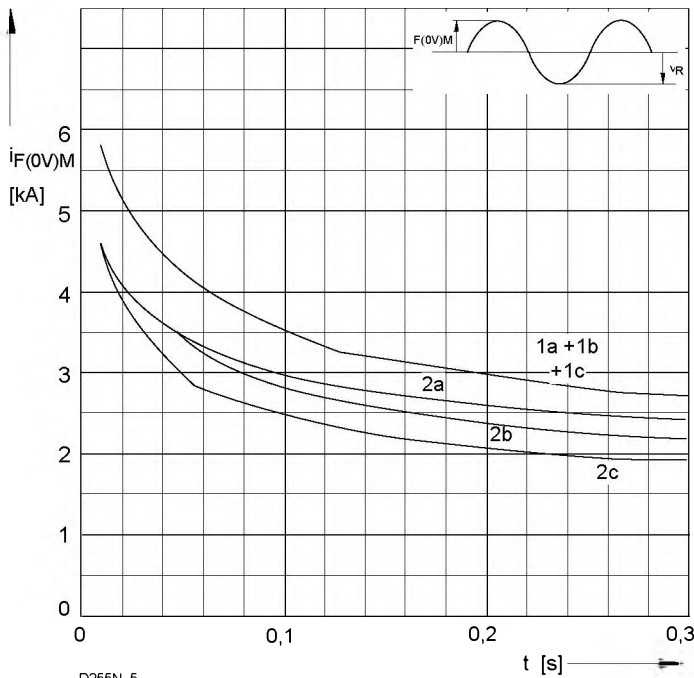
Bild/ Fig. 1
Grenzdurchlaßkennlinie
Limiting forward characteristic $i_F = f(V_F)$

— $t_{vj} = 100\text{ °C}$
- - - $t_{vj} = 25\text{ °C}$



D255N_4

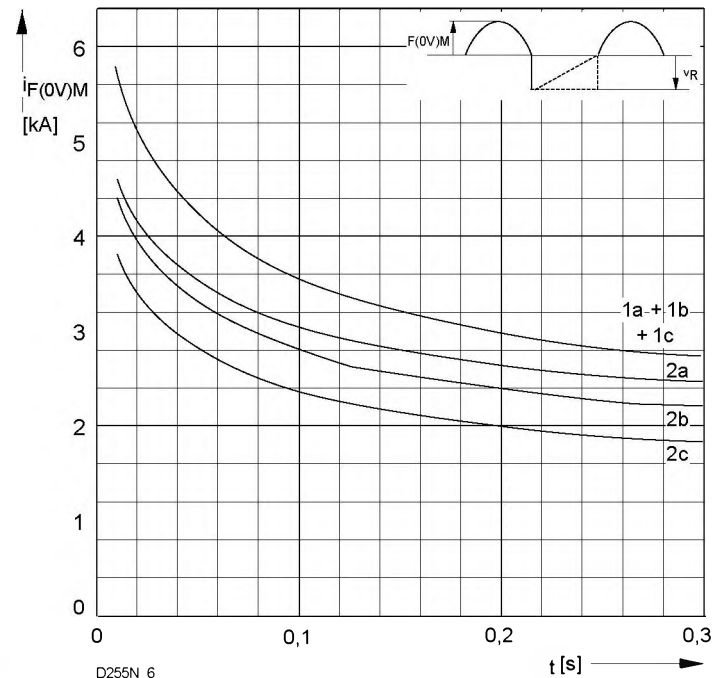
Bild / Fig. 2
Normiertes Grenzlastintegral / Normalized i^2t
 $\int i^2 dt = f(t_p)$



D255N_5

Bild / Fig. 3
Grenzstrom / Maximum overload forward current $I_{F(0V)M} = f(t)$

1 - $I_{FAV(vor)} = 0\text{ A}$; $t_{vj} = t_c = 25\text{ °C}$
2 - $I_{FAV(vor)} = \text{A}$; $t_c = \text{°C}$; $t_{vj} = \text{°C}$
a - $V_R \leq 50\text{ V}$
b - $V_R = V_{RRM}$
c - $V_R = 0,8 V_{RRM}$

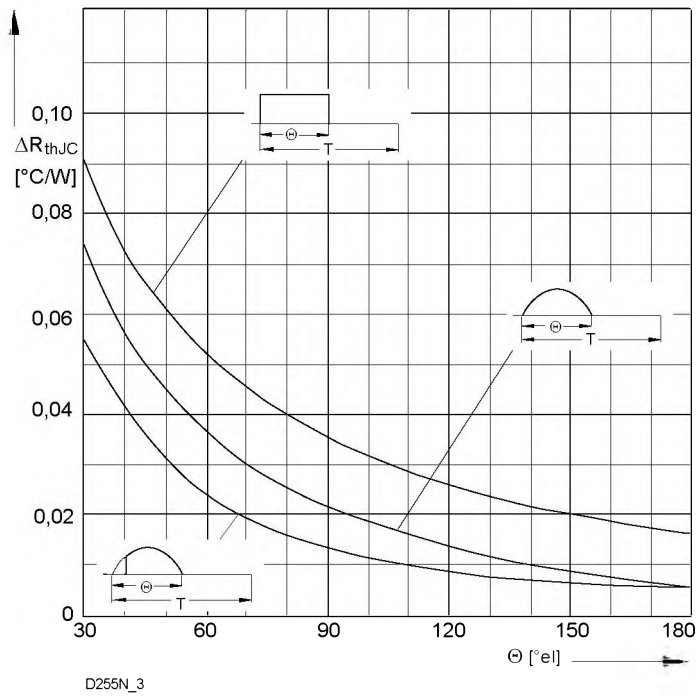


D255N_6

Bild / Fig. 4
Grenzstrom / Maximum overload forward current $I_{F(0V)M} = f(t)$

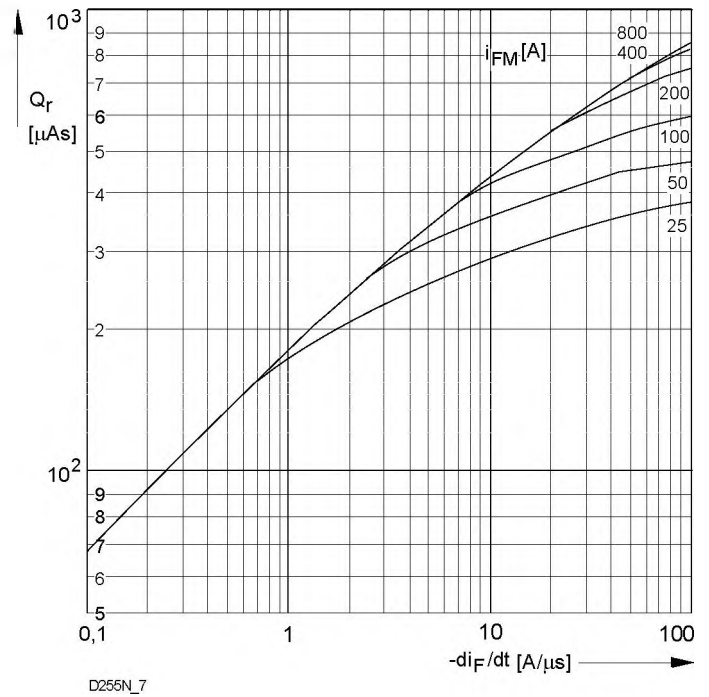
1 - $I_{FAV(vor)} = 0\text{ A}$; $t_{vj} = t_c = 25\text{ °C}$
2 - $I_{FAV(vor)} = \text{A}$; $t_c = \text{°C}$; $t_{vj} = \text{°C}$
a - $V_R \leq 50\text{ V}$
b - $V_R = 0,5 V_{RRM}$
c - $V_R = 0,8 V_{RRM}$

D255N



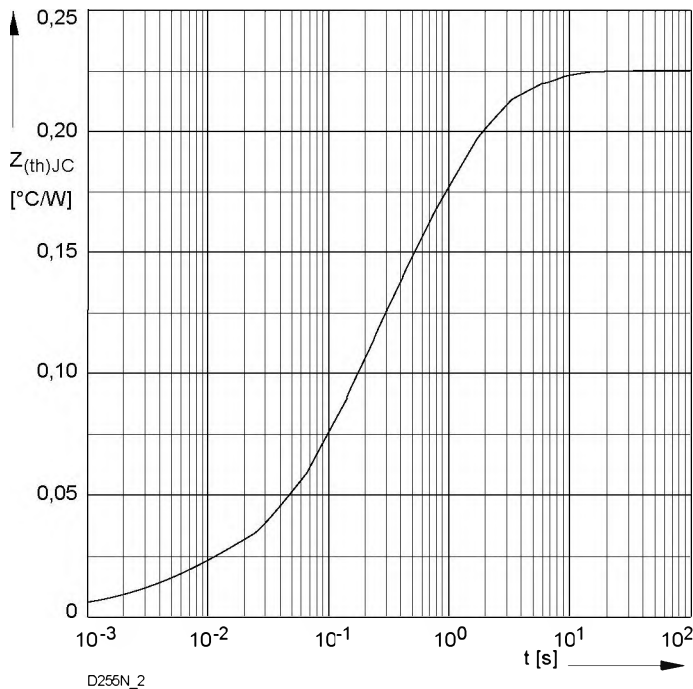
D255N_3

Bild / Fig. 5
Differenz zwischen den Wärmewiderständen für Pulsstrom und DC
Difference between the values of thermal resistance for pulse current and DC
Parameter: Stromkurvenform / Current waveform



D255N_7

Bild / Fig. 6
Sperrverzögerungsladung / Recovered charge $Q_r = f(-di/dt)$
 $t_{vj} = t_{vjmax}; V_R \leq 0,5 V_{RRM}; V_{RM} = 0,8 V_{RRM}$
Beschaltung / Snubber: $C = \mu F; R = \Omega$
Parameter: Durchlaßstrom / Forward current I_{FM}



D255N_2

Bild / Fig. 7
Transienter innerer Wärmewiderstand
Transient thermal impedance $Z_{thJC} = f(t)$, DC
1 - Beidseitige Kühlung / Two-sided cooling
2 - Anodenseitige Kühlung / Anode-sided cooling
3 - Kathodenseitige Kühlung / Cathode-sided cooling

Analytische Elemente des transienten Wärmewiderstandes Z_{thJC} für DC
Analytical elements of transient thermal impedance Z_{thJC} for DC

Pos. n	1	2	3	4	5	6	7
R_{thn} °C/W	0,000114	0,003146	0,00934	0,0242	0,0762	0,195	0,112
τ_n [s]	0,000018	0,000282	0,00282	0,0132	0,265	1,2	7,57

Analytische Funktion / Analytical function:

$$Z_{thJC} = \sum_{n=1}^{n_{max}} R_{thn} (1 - \text{EXP}(-t/\tau_n))$$