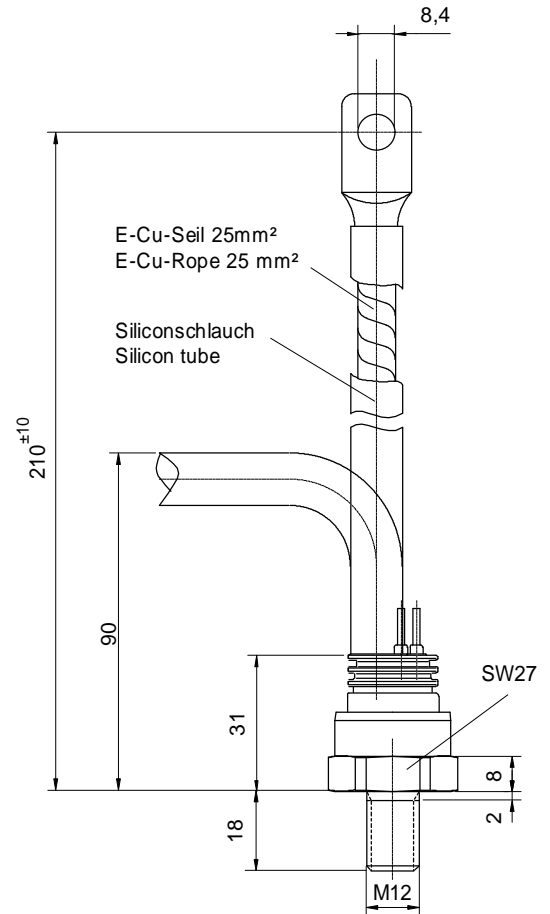
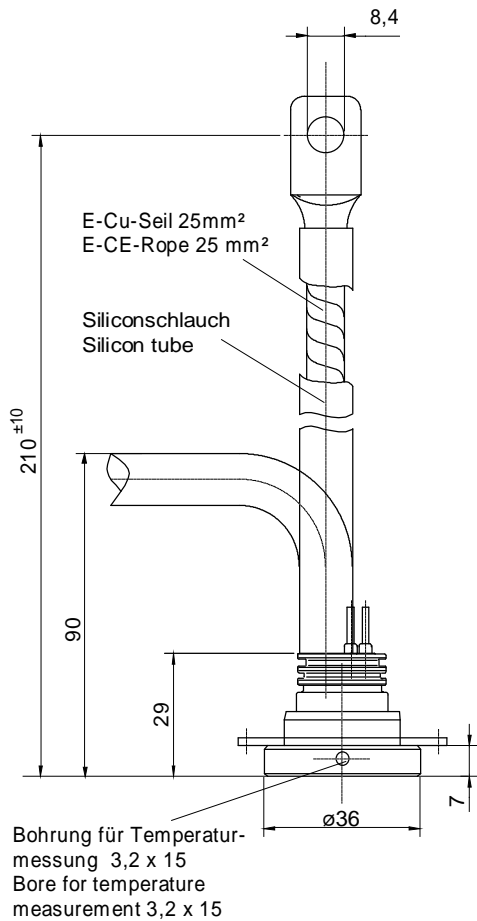


European Power-Semiconductor and Electronics Company GmbH + Co. KG

Leistungsgleichrichterdioden Power Rectifier Diodes D 255 K



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
K		Gewinde Thread	Seil Rope	blau blue

D 255 K

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	$t_c = 75^{\circ}\text{C}$ $t_c = 130^{\circ}\text{C}$	I_{FAVM}	255 150	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}	5,1 4	kA kA
Grenzlastintegral	$I^2 t$ -value	$t_{vj} = 25^{\circ}\text{C}, t_p = 10 \text{ ms}$ $t_{vj} = t_{vj \text{ max}}, t_p = 10 \text{ ms}$	$I^2 t$	130 80	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.	0,345	$^{\circ}\text{C}/\text{W}$
	to case	DC		max.	0,340	$^{\circ}\text{C}/\text{W}$
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_{stg}		-40...+180	$^{\circ}\text{C}$

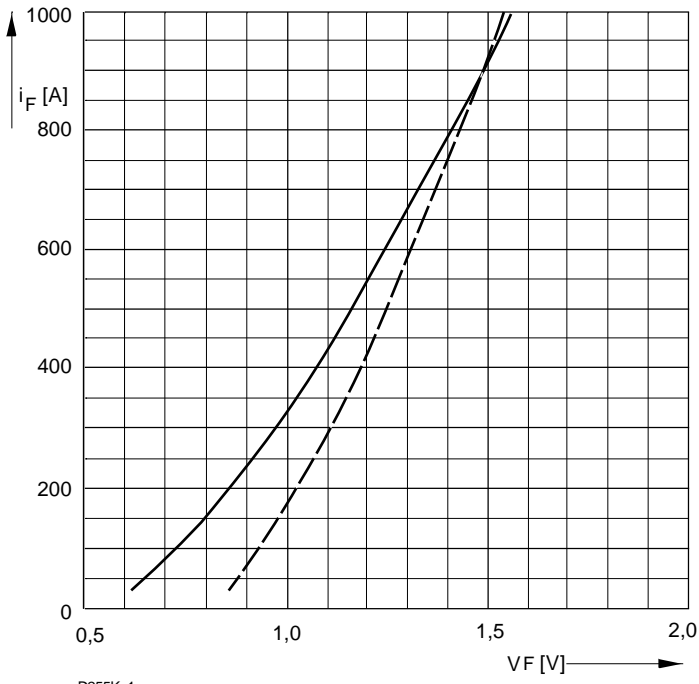
Mechanische Eigenschaften

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				Kathode=Gehäuse/case	

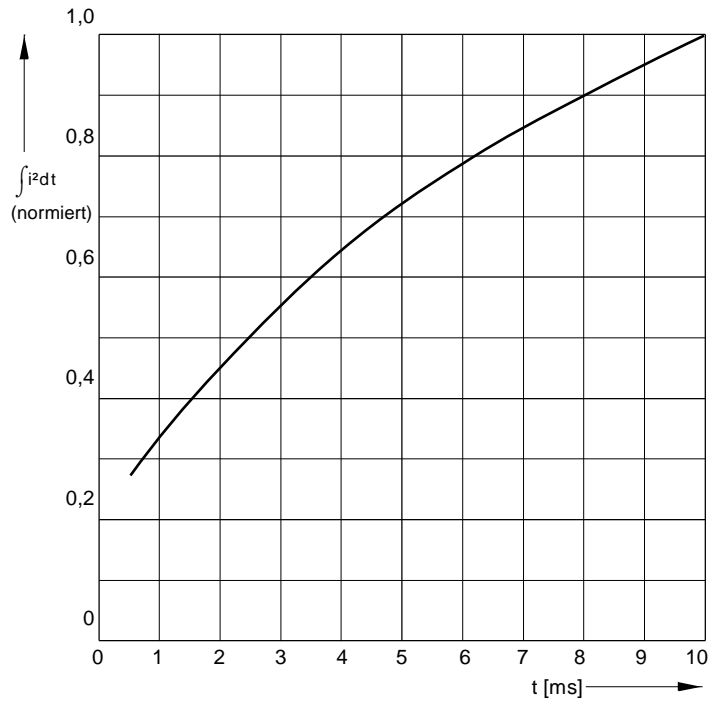
* Bitte Liefertermin erfragen / Delivery on request

D255K



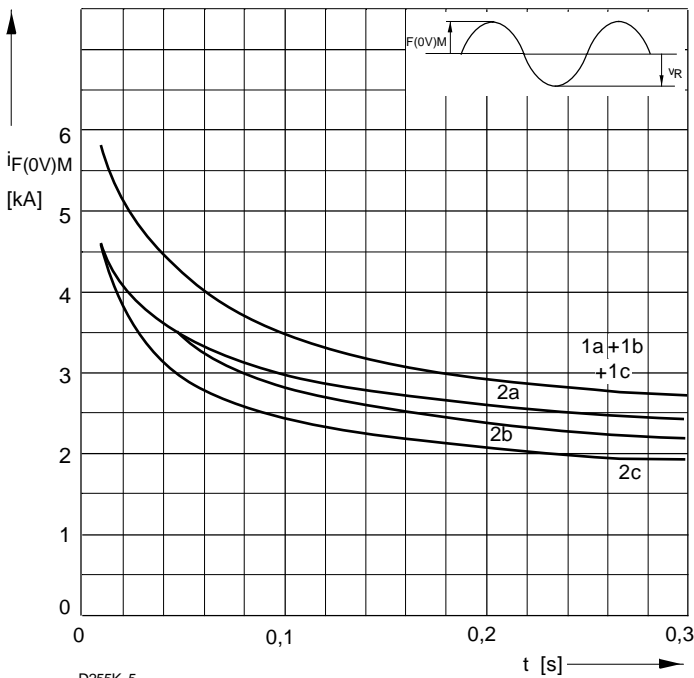
D255K_1

Bild/ Fig. 1
Grenzdurchlaßkennlinie
Limiting forward characteristic $i_F = f(V_F)$
— $t_{vj} = 100\text{ °C}$
- - - $t_{vj} = 25\text{ °C}$



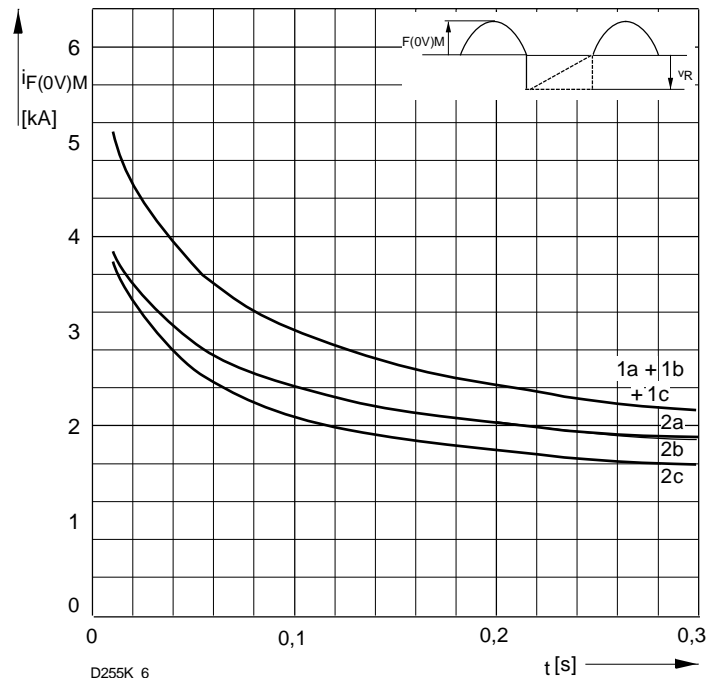
D255K_4

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



D255K_5

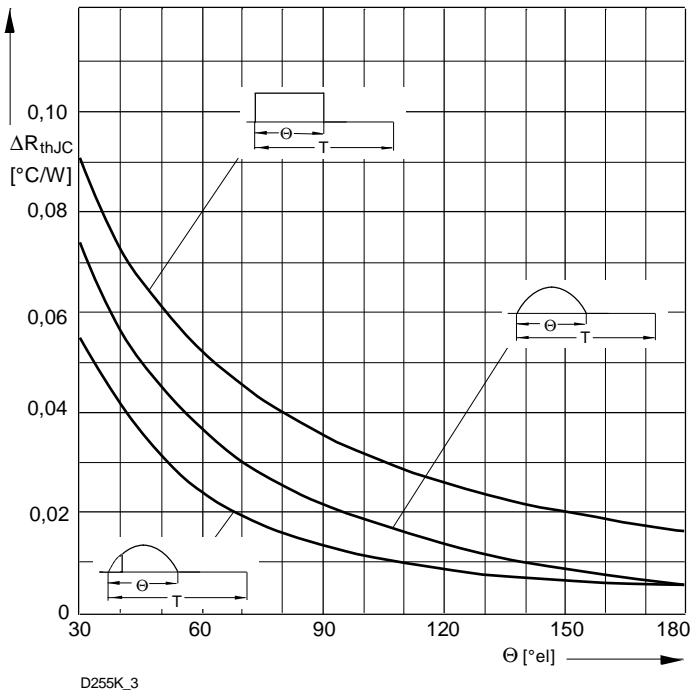
Bild / Fig. 3
Grenzstrom / Maximum overload forward current $I_{F(0V)M} = f(t)$
1 - $I_{FAV(vor)} = 0\text{ A}$; $t_{vj} = t_c = 25\text{ °C}$
2 - $I_{FAV(vor)} = 1\text{ A}$; $t_c = 100\text{ °C}$; $t_{vj} = 25\text{ °C}$
a - $V_R \leq 50\text{ V}$
b - $V_R = V_{RRM}$
c - $V_R = 0,8 V_{RRM}$



D255K_6

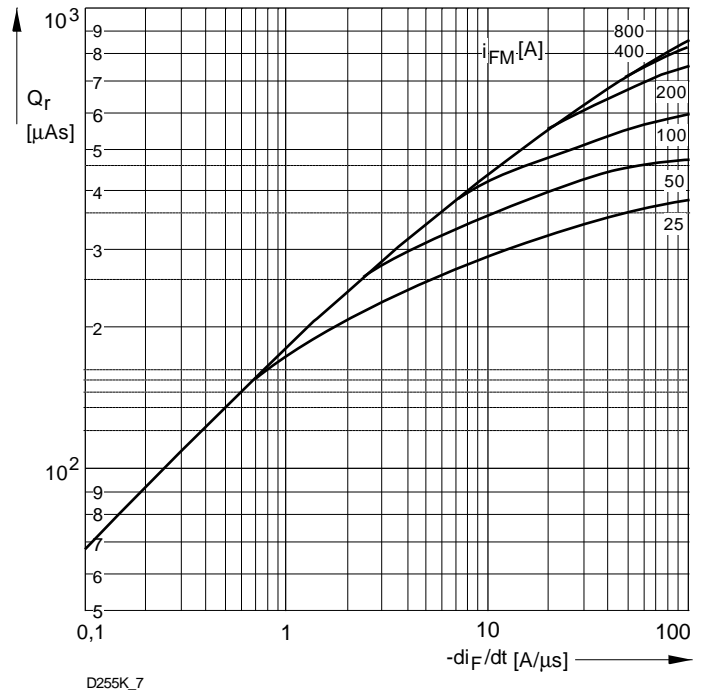
Bild / Fig. 4
Grenzstrom / Maximum overload forward current $I_{F(0V)M} = f(t)$
1 - $I_{FAV(vor)} = 0\text{ A}$; $t_{vj} = t_c = 25\text{ °C}$
2 - $I_{FAV(vor)} = 1\text{ A}$; $t_c = 100\text{ °C}$; $t_{vj} = 25\text{ °C}$
a - $V_R \leq 50\text{ V}$
b - $V_R = 0,5 V_{RRM}$
c - $V_R = 0,8 V_{RRM}$

D255K



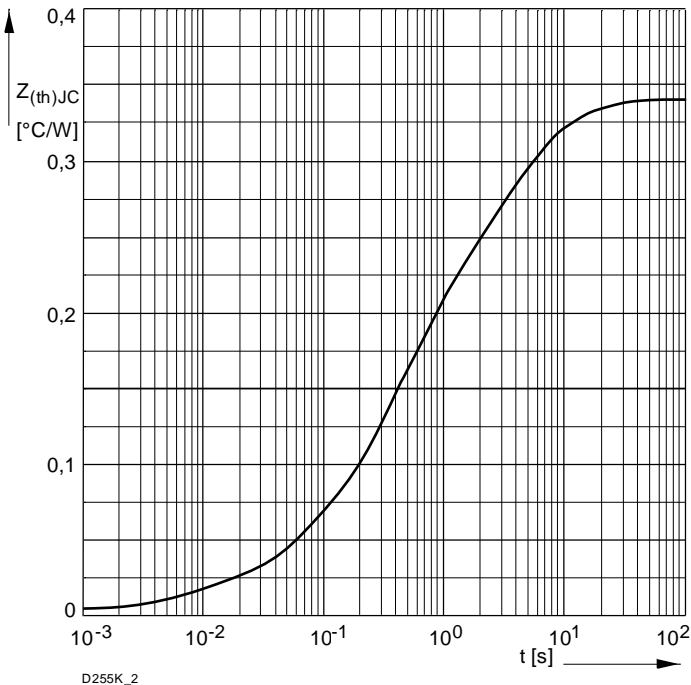
D255K_3

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



D255K_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}



D255K_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 / Kathode-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	0,00113	0,00635	0,00932	0,142	0,126	0,0552	
τ_n [s]	0,000057	0,000754	0,00958	0,213	2,05	10,4	

Analytische Funktion / Analytical function:

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