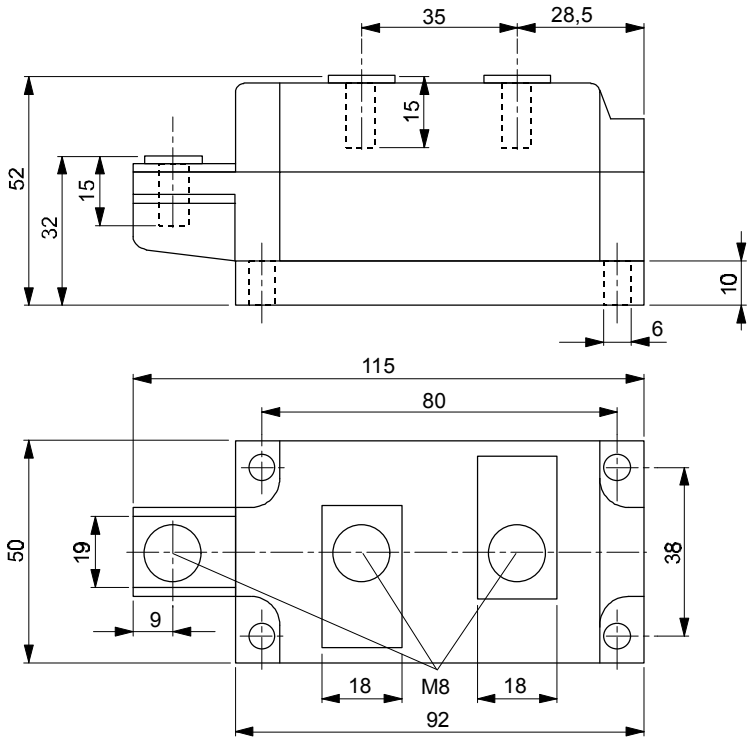
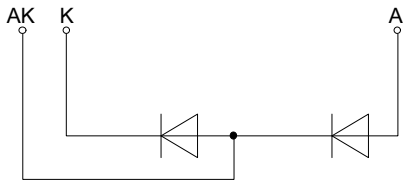
European Power-
Semiconductor and
Electronics Company

Marketing Information
DD 242 S





VWK Febr. 1997

Elektrische Eigenschaften Höchstzulässige Werte	Electrical properties Maximum rated values				
Periodische Spitzensperrspannung	repetitive peak reverse voltage	t_{vj} = -40°C...$t_{vj\,max}$	V_{RRM} DD 242 S:	400 600 800 1000	V
Stoßspitzenspannung	non-repetitive peak reverse voltage	t_{vj} = +25°C...$t_{vj\,max}$	$V_{RSM} = V_{RRM}$	+ 50	V
Durchlaßstrom-Grenzeffektivwert	RMS forward current		I_{FRMSM}	410	A
Dauergrenzstrom	average forward current	t_c = 100°C	I_{FAVM}	240	A
		t_c = 94°C		261	A
Stoßstrom-Grenzwert	surge current	$t_{vj} \leq$ 25°C, t_p = 10 ms	I_{FSM}	9300	A
		$t_{vj} = t_{vj\,max}$, t_p = 10 ms		7500	A
Grenzlastintegral	$\int I^2 t$-value	$t_{vj} \leq$ 25°C, t_p = 10 ms	$\int I^2 t$	432000	A^2s
		$t_{vj} = t_{vj\,max}$, t_p = 10 ms		281000	A^2s
Charakteristische Werte	**Characteristic values**				
Durchlaßspannung	forward voltage	$t_{vj} = t_{vj\,max}$, i_F = 800 A	v_F	max. 1,55	V
Schleusenspannung	threshold voltage		$V_{(TO)}$	1,1	V
Ersatzwiderstand	slope resistance		r_T	0,5	mΩ
Sperrstrom	reverse current	$t_{vj} = t_{vj\,max}$, $v_R = V_{RRM}$	i_R	max. 200	mA
Rückstromspitze	peak reverse recovery current	$t_{vj} = t_{vj\,max}$, i_{FM} = 250 A,	I_{RM}		
		$-di_F/dt$ = 100 A/µs		max. 98	A
Sperrverzugsladung	recovered charge	$t_{vj} = t_{vj\,max}$, i_{FM} = 250 A,	Q_r		
		$-di_F/dt$ = 100 A/µs		max. 120	µAs
Isolations-Prüfspannung	insulation test voltage	RMS, f = 50 Hz, t = 1 min.	V_{ISOL}	3	kV
Thermische Eigenschaften	**Thermal properties**				
Innerer Wärmewiderstand	thermal resistance, junction	Θ =180°el. sin: pro Modul/per module	R_{thJC}	max. 0,075	°C/W
	to case	pro Zweig/per arm		max. 0,15	°C/W
		DC: pro Modul/per module		max. 0,072	°C/W
		pro Zweig/per arm		max. 0,144	°C/W
Übergangs-Wärmewiderstand	thermal resistance, case to heatsink	pro Modul/per module	R_{thCK}	max. 0,02	°C/W
		pro Zweig/per arm		max. 0,04	°C/W
Höchstzul.Sperrschichttemperatur	max. junction temperature		$t_{vj\,max}$	150	°C
Betriebstemperatur	operating temperature		$t_{c\,op}$	-40...+150	°C
Lagertemperatur	storage temperature		t_{stg}	-40...+150	°C
Mechanische Eigenschaften	**Mechanical properties**				
Si-Elemente mit Druckkontakt	Si-pellets with pressure contact				
Innere Isolation	internal insulation			AlN	
Anzugsdrehmomente	tightening torques				
mechanische Befestigung	mounting torque	Toleranz/tolerance +/- 15%	M1	6	Nm
elektrische Anschlüsse	terminal connection torque	Toleranz/tolerance +5%/-10%	M2	12	Nm
Gewicht	weight		G	typ. 800	g
Kriechstrecke	creepage distance			17	mm
Schwingfestigkeit	vibration resistance	f = 50 Hz		5 · 9,81	m/s²
Maßbild	outline				8

DD 242 S kann auch mit gemeinsamer Anode oder gemeinsamer Kathode geliefert werden.

DD 242 S can also be supplied with common anode or common cathode.

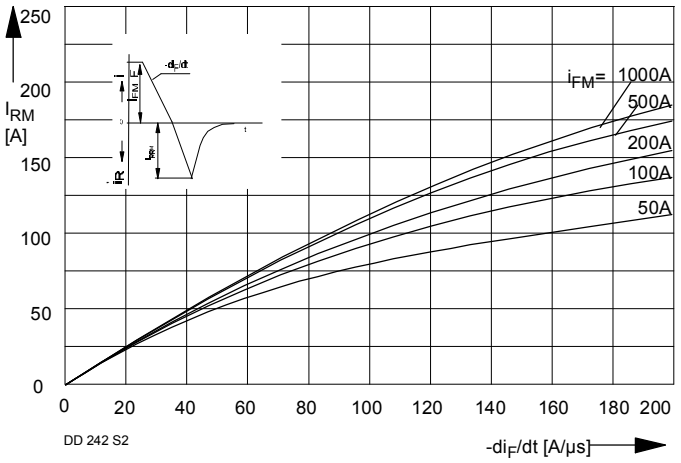


Bild / Fig. 1
Typische Abhängigkeit der oberen Rückstromspitze von der abkommutierenden Stromsteilheit -di_F/dt bei $t_{vj\ max}$.
Typical realationship between the maximum peak reverse recovery current and the rate ofdecay of forward current -di_F/dt at $t_{vj\ max}$

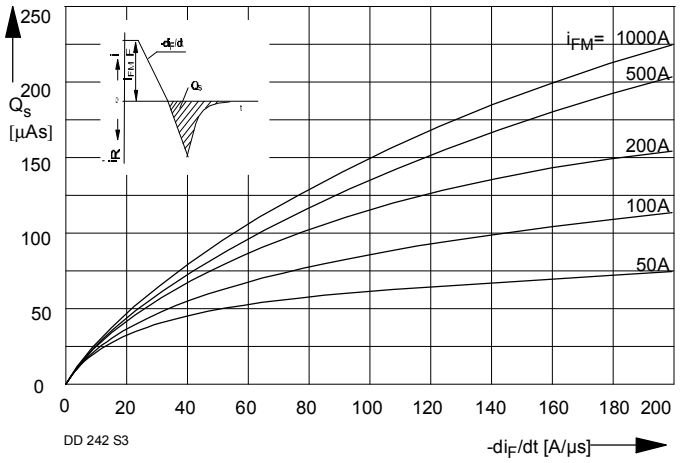


Bild / Fig. 2
Typische Abhängigkeit der oberen Sperrverzögerungsladung Q_s von der abkommutierenden Stromsteilheit -di_F/dt bei $t_{vj\ max}$.
Typical realationship between the maximum recovered charge Q_s and the rate of decay of forward current -di_F/dt at $t_{vj\ max}$

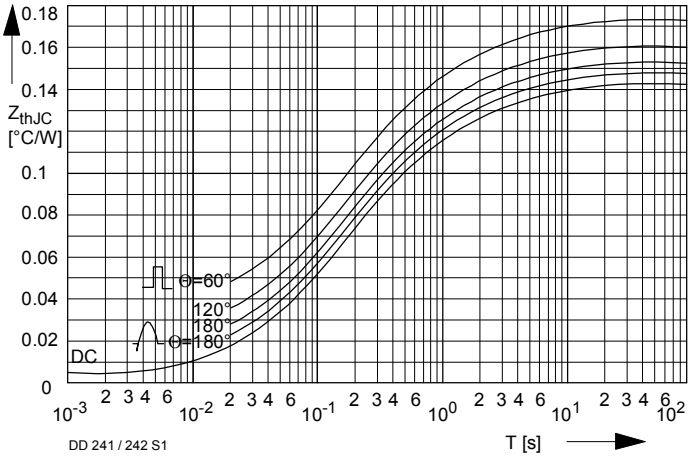


Bild / Fig. 3
Transienter innerer Wärmewiderstand $Z_{(th)JC}$ je Zweig bei sinus- und trapezförmigem Stromverlauf.
Transient thermal impedance $Z_{(th)JC}$, junction to case per arm at sinusoidal and trapetzodial current waveform.

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

Pos. n	1	2	3	4	5	6	7
R_{thn}[°C/W]	0,0031	0,0097	0,0257	0,0529	0,0526		
τ_n [s]	0,0009	0,008	0,11	0,61	3,06		

Analytische Funktion / Analytical function:

$$Z_{thJC} = \sum_{n=1}^{n_{max}} R_{thn}\,(1-e^{-\frac{t}{\tau_n}})$$

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