

Maximum Ratings / Höchstzulässige Werte

at T_j=25°C, unless otherwise specified

Parameter	Condition	Symbol	Datasheet Value	Unit
-----------	-----------	--------	-----------------	------

Input Rectifier Thyristor
Thyristore

Repetitive peak reverse voltage Periodische Rückw. Spitzensperrspannung		VRRM	1200	V
DC forward current Dauergrenzstrom	T _j =150°C T _H =80°C T _C =80°C	I _F	24 35	A
Surge forward current Stoßstrom Grenzwert	tp=10ms T _J =25°C	I _{FSM}	250	A
I ² t-value Grenzlastintegral	tp=10ms T _J =25°C	I ² t	310	A2s
Power dissipation per Thyristor Verlustleistung pro Thyristore	T _j =150°C T _H =80°C T _C =80°C	P _{tot}	35 58	W

Input Rectifier Diode
Gleichrichter

Repetitive peak reverse voltage Periodische Rückw. Spitzensperrspannung		VRRM	1600	V
DC forward current Dauergrenzstrom	T _j =150°C T _H =80°C T _C =80°C	I _F	20 29	A
Surge forward current Stoßstrom Grenzwert	tp=10ms T _J =25°C	I _{FSM}	200	A
I ² t-value Grenzlastintegral	tp=10ms T _J =25°C	I ² t	200	A2s
Power dissipation per Diode Verlustleistung pro Diode	T _j =150°C T _H =80°C T _C =80°C	P _{tot}	23 38	W

PFC Transistor
PFC Transistor

Drain to source breakdown voltage Drai-Source Sperrspannung		V _{br}	500	V
DC drain current Drain-Dauergleichstrom	T _j =150°C T _H =80°C T _C =80°C	I _d	15 20	A
Pulsed drain current Periodischer Drainstrom	T _j =150°C T _H =80°C tp=1ms T _C =80°C	I _d puls	31	A
Power dissipation Verlustleistung	T _j =150°C T _H =80°C T _C =80°C	P _{tot}	53 88	W
Gate-source peak voltage Gate-Source-Spitzenspannung		V _{gs}	±20	V

Maximum Ratings / Höchstzulässige Werte

at T_j=25°C, unless otherwise specified

Parameter	Condition	Symbol	Datasheet Value	Unit
PFC Tandem Diode				
PFC Tandem Diode				
DC forward current	T _j =150°C T _H =80°C	I _F	11	A
Dauergleichstrom	T _C =80°C		16	
Repetitive peak forward current	T _j =150°C T _H =80°C	I _{FRM}	22	A
Periodischer Spitzenstrom	t _p =1ms T _C =80°C			
Power dissipation per Diode	T _j =150°C T _H =80°C	P _{tot}	22	W
Verlustleistung pro Diode	T _C =80°C		37	

PFC Shunt
PFC Shunt

DC forward current	T _C =25°C	I _F	22	A
Dauergleichstrom				
Power dissipation per Shunt	T _C =25°C	P _{tot}	5	W
Verlustleistung pro Shunt				

PFC Capacitor
PFC Kondensator

Max.DC voltage	T _C =25°C	U _{MAX}	500	V
Max. Gleichspannung				

Thermal properties
Thermische Eigenschaften

max. Chip temperature		T _{jmax}	150	°C
max. Chiptemperatur				
Storage temperature		T _{stg}	-40...+125	°C
Lagertemperatur				
Operation temperature		T _{op}	-40...+125	°C
Betriebstemperatur				
Thermal resistance, chip to case	Thyristor Rectifier	R _{thJH}	2,0	K/W
Wärmewiderstand Chip-Bodenplatte		R _{thJC}	1,2	
per chip	Diode Rectifier	R _{thJH}	3,1	K/W
		R _{thJC}	1,8	
	Transistor PFC	R _{thJH}	1,3	K/W
		R _{thJC}	0,8	
	Diode PFC X 2	R _{thJH}	3,1	K/W
		R _{thJC}	1,9	

Insulation properties
Modulisolation

Insulation test voltage	t=1min	V _{is}	4000	V _{dc}
Isolationsspannung				
Creepage distance			12,5 mm	mm
Kriechstrecke				
Clearance			12,5 mm	mm
Luftstrecke				

Characteristic values / Charakteristische Werte

at T_J=25°C, unless otherwise specified

Parameter	Symbol	Condition:	T	RG	VGE	VCE	IF	IC	Value			Unit
			(°C)	(W)	(V)	(V)	(A)	(A)	min.	typ.	max.	

Input Rectifier Diode

Gleichrichter

Forward voltage Durchlaßspannung	VF	T _J =25°C					10			1,05		V
Threshold voltage (for power loss calc. only) Schleusenspannung	Vto	T _J =25°C					10			0,89		V
Slope resistance (for power loss calc. only) Ersatzwiderstand	rt	T _J =25°C					10			16		mW
Reverse current Sperrstrom	Ir	VR=VRmax T _J =25°C									0,01	mA

Input Rectifier Thyristor

Thyristor

Forward voltage Durchlaßspannung	VF	T _J =25°C					30			1,6		V
Threshold voltage (for power loss calc. only) Schleusenspannung	Vto	T _J =25°C					30					V
Slope resistance (for power loss calc. only) Ersatzwiderstand	rt	T _J =25°C T _J =130°C					30			1 18		mW
Reverse current Sperrstrom	Ir	VR=VRmax T _J =25°C T _J =130°C									4	mA

Transistor PFC

Transistor PFC

Static drain to source ON resistance Statische drain-source Widerstand	Rds(on)	T _J =25°C				10		10,0		0,22	0,25	W
Gate threshold voltage Gate Spitzenspannung	V(GS)th	VDS=VGS T _J =25°C VDS=VGS, ID=250µA							3	4	5	V
Drain to Source breakdown voltage Drain source Leckstrom	V(BR)DSS	ID=250µA T _J =25°C			0			0,25m	500			V
Drain to Source Leakage Current Drain source Leckstrom	Igss	T _J =25°C			30	0					100	nA
Turn On Delay Time Einschaltverzögerung	td(ON)	VDD=250V T _J =25°C	4,7	10				10,0		32	43	ns
Rise Time Anstiegszeit	tr	VDD=250V T _J =25°C	4,7	10				10,0		15	21	ns
Turn off delay time Abschaltverzögerung	td(OFF)	VDD=400V T _J =25°C	4,7	10				20,0		20	27	ns
Fall time Abstiegszeit	tf	VDD=400V T _J =25°C	4,7	10				20,0		25	33	ns
Total gate charge Gate Ladung	Qg	VDD=400V T _J =25°C		10				20,0		85	110	nC
Gate to source charge Gate source Ladung	Qgs	VDD=400V T _J =25°C		10				20,0		21		nC
Gate to drain charge Gate drain Ladung	Qgd	T _J =25°C		10				20,0		37		nC
Input capacitance Eingangskapazität	Ciss	f=1MHz T _J =25°C		0	25					3600	4700	pF
Output capacitance Ausgangskapazität	Coss	f=1MHz T _J =25°C		0	25					460	600	pF

Characteristic values / Charakteristische Werte

at T_J=25°C, unless otherwise specified

Parameter	Symbol	Condition:	T	RG	VGE	VCE	IF	IC	Value			Unit
			(°C)	(W)	(V)	(V)	(A)	(A)	min.	typ.	max.	

Diode PFC

Diode PFC

Forward voltage Durchlaßspannung	VF	T _J =25°C T _J =125°C					8			2,1	3,6 2,6	V
Breakdown voltage Sperrspannung	Vr	I _r =100µA									600	V
Reverse leakage current Leckstrom	I _{rm}	V _r =V _r rated T _J =25°C T _J =125°C								15	10 100	µA
Reverse recovery time Sperreverzögerungszeit	t _{rr}	V _r =30V dif/dt=50A/µs T _J =25°C T _J =125°C					0,5				13	ns
Peak recovery current Rückstromspitze	I _{rrm}	V _r =400V dif/dt=200A/µs T _J =25°C T _J =125°C					8			4	5,5	A
Reverse recovery charge Sperrverzögerungsladung	Q _{rr}	V _r =200V dif/dt=200A/µs T _J =25°C T _J =125°C								TBD		nC
Peak rate of fall of recovery current Sitzenteilheit von Rückstrom	di(rec)max/ dt	V _r =200V dif/dt=200A/µs T _J =25°C T _J =125°C								TBD		A/µs

NTC-Thermistor

NTC-Widerstand

Rated resistance Nennwiderstand	R25	Tol. ±5% T _c =25°C							20,9	22	23,1	kW
Deviation of R100 Verlustleistung Epcos-Typ angeben	DR/R	R100=1503W T _c =100°C								2,9		%/K
B-value B-Wert	B(25/100)	Tol. ±3%								3980		K

Shunt

Shuntwiderstand

R value R Wert	R	Tol. 1% T _c =25°C								10		mW
Power dissipation Verlustleistung	P	T _c =25°C									5	W

Capacitor

Kondensator

C value C Wert	C	Tol. 10% T _c =25°C								680		nF
DC voltage DC Spannung	V _{DC}	T _c =25°C								500		V

Note:

xxxx = measured values