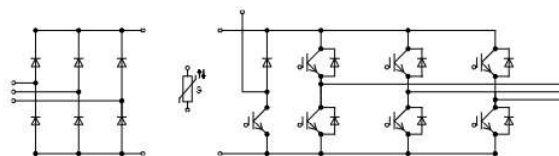


EconoPIM™3 Modul mit schnellem Trench/Feldstopp IGBT4 und Emitter Controlled 4 Diode und NTC
EconoPIM™3 module with fast Trench/Fieldstop IGBT4 and Emitter Controlled 4 diode and NTC



Typical appearance



$V_{CES} = 1200V$

$I_{C\ nom} = 75A / I_{CRM} = 150A$

Potentielle Anwendungen

- Hilfsumrichter
- Medizinische Anwendungen
- Motorantriebe
- Servoumrichter

Elektrische Eigenschaften

- Niedrige Schaltverluste
- Niedriges V_{CESat}
- $T_{vj\ op} = 150^{\circ}C$
- V_{CESat} mit positivem Temperaturkoeffizienten

Mechanische Eigenschaften

- Hohe Last- und thermische Wechselfestigkeit
- Integrierter NTC Temperatur Sensor
- Kupferbodenplatte
- Lötverbindungstechnik
- Standardgehäuse

Potential Applications

- Auxiliary inverters
- Medical applications
- Motor drives
- Servo drives

Electrical Features

- Low switching losses
- Low V_{CESat}
- $T_{vj\ op} = 150^{\circ}C$
- V_{CESat} with positive temperature coefficient

Mechanical Features

- High power and thermal cycling capability
- Integrated NTC temperature sensor
- Copper base plate
- Solder contact technology
- Standard housing

Module Label Code

Barcode Code 128



DMX - Code



Content of the Code

Content of the Code	Digit
Module Serial Number	1 - 5
Module Material Number	6 - 11
Production Order Number	12 - 19
Datecode (Production Year)	20 - 21
Datecode (Production Week)	22 - 23

IGBT, Wechselrichter / IGBT, Inverter**Höchstzulässige Werte / Maximum Rated Values**

Kollektor-Emitter-Sperrspannung Collector-emitter voltage	$T_{vj} = 25^{\circ}\text{C}$	V_{CES}	1200	V
Kollektor-Dauergleichstrom Continuous DC collector current	$T_C = 95^{\circ}\text{C}$, $T_{vj\text{ max}} = 175^{\circ}\text{C}$	$I_{C\text{ nom}}$	75	A
Periodischer Kollektor-Spitzenstrom Repetitive peak collector current	$t_P = 1\text{ ms}$	I_{CRM}	150	A
Gate-Emitter-Spitzenspannung Gate-emitter peak voltage		V_{GES}	+/-20	V

Charakteristische Werte / Characteristic Values

			min.	typ.	max.	
Kollektor-Emitter-Sättigungsspannung Collector-emitter saturation voltage	$I_C = 75\text{ A}$, $V_{GE} = 15\text{ V}$ $I_C = 75\text{ A}$, $V_{GE} = 15\text{ V}$ $I_C = 75\text{ A}$, $V_{GE} = 15\text{ V}$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	$V_{CE\text{ sat}}$	1,85 2,15 2,25	2,15	V V V
Gate-Schwellenspannung Gate threshold voltage	$I_C = 2,40\text{ mA}$, $V_{CE} = V_{GE}$, $T_{vj} = 25^{\circ}\text{C}$		V_{GEth}	5,20	5,80	6,40 V
Gateladung Gate charge	$V_{GE} = -15 / 15\text{ V}$		Q_G	0,57		μC
Interner Gatewiderstand Internal gate resistor	$T_{vj} = 25^{\circ}\text{C}$		R_{Gint}	10		Ω
Eingangskapazität Input capacitance	$f = 1\text{ MHz}$, $T_{vj} = 25^{\circ}\text{C}$, $V_{CE} = 25\text{ V}$, $V_{GE} = 0\text{ V}$		C_{ies}	4,30		nF
Rückwirkungskapazität Reverse transfer capacitance	$f = 1\text{ MHz}$, $T_{vj} = 25^{\circ}\text{C}$, $V_{CE} = 25\text{ V}$, $V_{GE} = 0\text{ V}$		C_{res}	0,16		nF
Kollektor-Emitter-Reststrom Collector-emitter cut-off current	$V_{CE} = 1200\text{ V}$, $V_{GE} = 0\text{ V}$, $T_{vj} = 25^{\circ}\text{C}$		I_{CES}		1,0	mA
Gate-Emitter-Reststrom Gate-emitter leakage current	$V_{CE} = 0\text{ V}$, $V_{GE} = 20\text{ V}$, $T_{vj} = 25^{\circ}\text{C}$		I_{GES}		100	nA
Einschaltverzögerungszeit, induktive Last Turn-on delay time, inductive load	$I_C = 75\text{ A}$, $V_{CE} = 600\text{ V}$ $V_{GE} = -15 / 15\text{ V}$ $R_{Gon} = 1,1\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	$t_{d\text{ on}}$	0,16 0,17 0,17		μs μs μs
Anstiegszeit, induktive Last Rise time, inductive load	$I_C = 75\text{ A}$, $V_{CE} = 600\text{ V}$ $V_{GE} = -15 / 15\text{ V}$ $R_{Gon} = 1,1\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	t_r	0,03 0,04 0,04		μs μs μs
Abschaltverzögerungszeit, induktive Last Turn-off delay time, inductive load	$I_C = 75\text{ A}$, $V_{CE} = 600\text{ V}$ $V_{GE} = -15 / 15\text{ V}$ $R_{Goff} = 1,1\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	$t_{d\text{ off}}$	0,34 0,43 0,45		μs μs μs
Fallzeit, induktive Last Fall time, inductive load	$I_C = 75\text{ A}$, $V_{CE} = 600\text{ V}$ $V_{GE} = -15 / 15\text{ V}$ $R_{Goff} = 1,1\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	t_f	0,08 0,15 0,17		μs μs μs
Einschaltverlustenergie pro Puls Turn-on energy loss per pulse	$I_C = 75\text{ A}$, $V_{CE} = 600\text{ V}$, $L\sigma = 40\text{ nH}$ $di/dt = 2500\text{ A}/\mu\text{s}$ ($T_{vj} = 150^{\circ}\text{C}$) $V_{GE} = -15 / 15\text{ V}$, $R_{Gon} = 1,1\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	E_{on}	3,10 6,60 7,65		mJ mJ mJ
Abschaltverlustenergie pro Puls Turn-off energy loss per pulse	$I_C = 75\text{ A}$, $V_{CE} = 600\text{ V}$, $L\sigma = 40\text{ nH}$ $du/dt = 3600\text{ V}/\mu\text{s}$ ($T_{vj} = 150^{\circ}\text{C}$) $V_{GE} = -15 / 15\text{ V}$, $R_{Goff} = 1,1\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	E_{off}	4,20 6,40 7,20		mJ mJ mJ
Kurzschlußverhalten SC data	$V_{GE} \leq 15\text{ V}$, $V_{CC} = 800\text{ V}$ $V_{CE\text{ max}} = V_{CES} - L_{SCE} \cdot di/dt$ $t_P \leq 10\ \mu\text{s}$, $T_{vj} = 150^{\circ}\text{C}$		I_{SC}	270		A
Wärmewiderstand, Chip bis Gehäuse Thermal resistance, junction to case	pro IGBT / per IGBT		R_{thJC}		0,390	K/W
Wärmewiderstand, Gehäuse bis Kühlkörper Thermal resistance, case to heatsink	pro IGBT / per IGBT $\lambda_{paste} = 1\text{ W}/(\text{m}\cdot\text{K})$ / $\lambda_{grease} = 1\text{ W}/(\text{m}\cdot\text{K})$		R_{thCH}		0,130	K/W
Temperatur im Schaltbetrieb Temperature under switching conditions			$T_{vj\text{ op}}$	-40	150	$^{\circ}\text{C}$

Diode, Wechselrichter / Diode, Inverter**Höchstzulässige Werte / Maximum Rated Values**

Periodische Spitzensperrspannung Repetitive peak reverse voltage	$T_{vj} = 25^{\circ}\text{C}$	V_{RRM}	1200	V
Dauergleichstrom Continuous DC forward current		I_F	75	A
Periodischer Spitzenstrom Repetitive peak forward current	$t_p = 1 \text{ ms}$	I_{FRM}	150	A
Grenzlastintegral I^2t - value	$V_R = 0 \text{ V}, t_p = 10 \text{ ms}, T_{vj} = 125^{\circ}\text{C}$	I^2t	960	A^2s

Charakteristische Werte / Characteristic Values

			min.	typ.	max.	
Durchlassspannung Forward voltage	$I_F = 75 \text{ A}, V_{GE} = 0 \text{ V}$ $I_F = 75 \text{ A}, V_{GE} = 0 \text{ V}$ $I_F = 75 \text{ A}, V_{GE} = 0 \text{ V}$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	V_F	1,70 1,65 1,65	2,15	V V V
Rückstromspitze Peak reverse recovery current	$I_F = 75 \text{ A}, -di_F/dt = 2500 \text{ A}/\mu\text{s} (T_{vj}=150^{\circ}\text{C})$ $V_R = 600 \text{ V}$ $V_{GE} = -15 \text{ V}$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	I_{RM}	88,0 89,0 90,0		A A A
Sperrverzögerungsladung Recovered charge	$I_F = 75 \text{ A}, -di_F/dt = 2500 \text{ A}/\mu\text{s} (T_{vj}=150^{\circ}\text{C})$ $V_R = 600 \text{ V}$ $V_{GE} = -15 \text{ V}$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	Q_r	7,30 13,0 14,5		μC μC μC
Abschaltenergie pro Puls Reverse recovery energy	$I_F = 75 \text{ A}, -di_F/dt = 2500 \text{ A}/\mu\text{s} (T_{vj}=150^{\circ}\text{C})$ $V_R = 600 \text{ V}$ $V_{GE} = -15 \text{ V}$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	E_{rec}	2,65 4,60 5,65		mJ mJ mJ
Wärmewiderstand, Chip bis Gehäuse Thermal resistance, junction to case	pro Diode / per diode		R_{thJC}		0,620	K/W
Wärmewiderstand, Gehäuse bis Kühlkörper Thermal resistance, case to heatsink	pro Diode / per diode $\lambda_{paste} = 1 \text{ W}/(\text{m}\cdot\text{K}) / \lambda_{g/raese} = 1 \text{ W}/(\text{m}\cdot\text{K})$		R_{thCH}		0,205	K/W
Temperatur im Schaltbetrieb Temperature under switching conditions			$T_{vj op}$	-40	150	$^{\circ}\text{C}$

Diode, Gleichrichter / Diode, Rectifier**Höchstzulässige Werte / Maximum Rated Values**

Periodische Spitzensperrspannung Repetitive peak reverse voltage	$T_{vj} = 25^{\circ}\text{C}$	V_{RRM}	1600	V
Durchlassstrom Grenzeffektivwert pro Chip Maximum RMS forward current per chip	$T_C = 80^{\circ}\text{C}$	I_{FRMSM}	80	A
Gleichrichter Ausgang Grenzeffektivstrom Maximum RMS current at rectifier output	$T_C = 80^{\circ}\text{C}$	I_{RMSM}	140	A
Stoßstrom Grenzwert Surge forward current	$t_p = 10 \text{ ms}, T_{vj} = 25^{\circ}\text{C}$ $t_p = 10 \text{ ms}, T_{vj} = 150^{\circ}\text{C}$	I_{FSM}	600 470	A A
Grenzlastintegral I^2t - value	$t_p = 10 \text{ ms}, T_{vj} = 25^{\circ}\text{C}$ $t_p = 10 \text{ ms}, T_{vj} = 150^{\circ}\text{C}$	I^2t	1800 1100	A^2s A^2s

Charakteristische Werte / Characteristic Values

			min.	typ.	max.	
Durchlassspannung Forward voltage	$T_{vj} = 150^{\circ}\text{C}, I_F = 75 \text{ A}$	V_F		1,15		V
Sperrstrom Reverse current	$T_{vj} = 150^{\circ}\text{C}, V_R = 1600 \text{ V}$	I_R		1,00		mA
Wärmewiderstand, Chip bis Gehäuse Thermal resistance, junction to case	pro Diode / per diode	R_{thJC}			0,650	K/W
Wärmewiderstand, Gehäuse bis Kühlkörper Thermal resistance, case to heatsink	pro Diode / per diode $\lambda_{paste} = 1 \text{ W}/(\text{m}\cdot\text{K}) / \lambda_{g/raese} = 1 \text{ W}/(\text{m}\cdot\text{K})$	R_{thCH}		0,215		K/W
Temperatur im Schaltbetrieb Temperature under switching conditions			$T_{vj op}$	-40	150	$^{\circ}\text{C}$

IGBT, Brems-Chopper / IGBT, Brake-Chopper
Höchstzulässige Werte / Maximum Rated Values

Kollektor-Emitter-Sperrspannung Collector-emitter voltage	$T_{vj} = 25^{\circ}\text{C}$	V_{CES}	1200	V
Kollektor-Dauergleichstrom Continuous DC collector current	$T_C = 95^{\circ}\text{C}$, $T_{vj\text{ max}} = 175^{\circ}\text{C}$	$I_{C\text{ nom}}$	50	A
Periodischer Kollektor-Spitzenstrom Repetitive peak collector current	$t_P = 1\text{ ms}$	I_{CRM}	100	A
Gate-Emitter-Spitzenspannung Gate-emitter peak voltage		V_{GES}	+/-20	V

Charakteristische Werte / Characteristic Values

			min.	typ.	max.	
Kollektor-Emitter-Sättigungsspannung Collector-emitter saturation voltage	$I_C = 50\text{ A}$, $V_{GE} = 15\text{ V}$ $I_C = 50\text{ A}$, $V_{GE} = 15\text{ V}$ $I_C = 50\text{ A}$, $V_{GE} = 15\text{ V}$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	$V_{CE\text{ sat}}$	1,85 2,15 2,25	2,15	V V V
Gate-Schwellenspannung Gate threshold voltage	$I_C = 1,60\text{ mA}$, $V_{CE} = V_{GE}$, $T_{vj} = 25^{\circ}\text{C}$		V_{GEth}	5,20	5,80	6,40 V
Gateladung Gate charge	$V_{GE} = -15 / 15\text{ V}$		Q_G	0,38		μC
Interner Gatewiderstand Internal gate resistor	$T_{vj} = 25^{\circ}\text{C}$		R_{Gint}	4,0		Ω
Eingangskapazität Input capacitance	$f = 1\text{ MHz}$, $T_{vj} = 25^{\circ}\text{C}$, $V_{CE} = 25\text{ V}$, $V_{GE} = 0\text{ V}$		C_{ies}	2,80		nF
Rückwirkungskapazität Reverse transfer capacitance	$f = 1\text{ MHz}$, $T_{vj} = 25^{\circ}\text{C}$, $V_{CE} = 25\text{ V}$, $V_{GE} = 0\text{ V}$		C_{res}	0,10		nF
Kollektor-Emitter-Reststrom Collector-emitter cut-off current	$V_{CE} = 1200\text{ V}$, $V_{GE} = 0\text{ V}$, $T_{vj} = 25^{\circ}\text{C}$		I_{CES}		1,0	mA
Gate-Emitter-Reststrom Gate-emitter leakage current	$V_{CE} = 0\text{ V}$, $V_{GE} = 20\text{ V}$, $T_{vj} = 25^{\circ}\text{C}$		I_{GES}		100	nA
Einschaltverzögerungszeit, induktive Last Turn-on delay time, inductive load	$I_C = 50\text{ A}$, $V_{CE} = 600\text{ V}$ $V_{GE} = -15 / 15\text{ V}$ $R_{Gon} = 15\text{ }\Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	$t_{d\text{ on}}$	0,16 0,17 0,17		μs μs μs
Anstiegszeit, induktive Last Rise time, inductive load	$I_C = 50\text{ A}$, $V_{CE} = 600\text{ V}$ $V_{GE} = -15 / 15\text{ V}$ $R_{Gon} = 15\text{ }\Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	t_r	0,03 0,04 0,04		μs μs μs
Abschaltverzögerungszeit, induktive Last Turn-off delay time, inductive load	$I_C = 50\text{ A}$, $V_{CE} = 600\text{ V}$ $V_{GE} = -15 / 15\text{ V}$ $R_{Goff} = 15\text{ }\Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	$t_{d\text{ off}}$	0,33 0,43 0,45		μs μs μs
Fallzeit, induktive Last Fall time, inductive load	$I_C = 50\text{ A}$, $V_{CE} = 600\text{ V}$ $V_{GE} = -15 / 15\text{ V}$ $R_{Goff} = 15\text{ }\Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	t_f	0,08 0,15 0,17		μs μs μs
Einschaltverlustenergie pro Puls Turn-on energy loss per pulse	$I_C = 50\text{ A}$, $V_{CE} = 600\text{ V}$, $L_{\sigma} = 20\text{ nH}$ $V_{GE} = -15 / 15\text{ V}$, $R_{Gon} = 15\text{ }\Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	E_{on}	5,70 7,70 8,40		mJ mJ mJ
Abschaltverlustenergie pro Puls Turn-off energy loss per pulse	$I_C = 50\text{ A}$, $V_{CE} = 600\text{ V}$, $L_{\sigma} = 20\text{ nH}$ $V_{GE} = -15 / 15\text{ V}$, $R_{Goff} = 15\text{ }\Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	E_{off}	2,80 4,30 4,80		mJ mJ mJ
Kurzschlußverhalten SC data	$V_{GE} \leq 15\text{ V}$, $V_{CC} = 800\text{ V}$ $V_{CEmax} = V_{CES} - L_{sCE} \cdot di/dt$ $t_P \leq 10\text{ }\mu\text{s}$, $T_{vj} = 125^{\circ}\text{C}$		I_{SC}	180		A
Wärmewiderstand, Chip bis Gehäuse Thermal resistance, junction to case	pro IGBT / per IGBT		R_{thJC}		0,540	K/W
Wärmewiderstand, Gehäuse bis Kühlkörper Thermal resistance, case to heatsink	pro IGBT / per IGBT $\lambda_{paste} = 1\text{ W/(m}\cdot\text{K)}$ / $\lambda_{grease} = 1\text{ W/(m}\cdot\text{K)}$		R_{thCH}	0,245		K/W
Temperatur im Schaltbetrieb Temperature under switching conditions			$T_{vj\text{ op}}$	-40	150	$^{\circ}\text{C}$

Diode, Brems-Chopper / Diode, Brake-Chopper**Höchstzulässige Werte / Maximum Rated Values**

Periodische Spitzensperrspannung Repetitive peak reverse voltage	$T_{vj} = 25^{\circ}\text{C}$	V_{RRM}	1200	V
Dauergleichstrom Continuous DC forward current		I_F	25	A
Periodischer Spitzenstrom Repetitive peak forward current	$t_P = 1 \text{ ms}$	I_{FRM}	50	A
Grenzlastintegral I^2t - value	$V_R = 0 \text{ V}, t_P = 10 \text{ ms}, T_{vj} = 125^{\circ}\text{C}$ $V_R = 0 \text{ V}, t_P = 10 \text{ ms}, T_{vj} = 150^{\circ}\text{C}$	I^2t	90,0 80,0	A^2s A^2s

Charakteristische Werte / Characteristic Values

			min.	typ.	max.	
Durchlassspannung Forward voltage	$I_F = 25 \text{ A}, V_{GE} = 0 \text{ V}$ $I_F = 25 \text{ A}, V_{GE} = 0 \text{ V}$ $I_F = 25 \text{ A}, V_{GE} = 0 \text{ V}$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	V_F	1,75 1,75 1,75	2,15	V V V
Rückstromspitze Peak reverse recovery current	$I_F = 25 \text{ A}, -di_F/dt = 1200 \text{ A}/\mu\text{s} (T_{vj}=150^{\circ}\text{C})$ $V_R = 600 \text{ V}$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	I_{RM}	39,0 40,0 41,0		A A A
Sperrverzögerungsladung Recovered charge	$I_F = 25 \text{ A}, -di_F/dt = 1200 \text{ A}/\mu\text{s} (T_{vj}=150^{\circ}\text{C})$ $V_R = 600 \text{ V}$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	Q_r	2,40 4,10 4,40		μC μC μC
Abschaltenergie pro Puls Reverse recovery energy	$I_F = 25 \text{ A}, -di_F/dt = 1200 \text{ A}/\mu\text{s} (T_{vj}=150^{\circ}\text{C})$ $V_R = 600 \text{ V}$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	E_{rec}	0,90 1,50 1,70		mJ mJ mJ
Wärmewiderstand, Chip bis Gehäuse Thermal resistance, junction to case	pro Diode / per diode		R_{thJC}		1,35	K/W
Wärmewiderstand, Gehäuse bis Kühlkörper Thermal resistance, case to heatsink	pro Diode / per diode $\lambda_{paste} = 1 \text{ W}/(\text{m}\cdot\text{K}) / \lambda_{g/raase} = 1 \text{ W}/(\text{m}\cdot\text{K})$		R_{thCH}	0,610		K/W
Temperatur im Schaltbetrieb Temperature under switching conditions		$T_{vj\text{ op}}$	-40		150	$^{\circ}\text{C}$

NTC-Widerstand / NTC-Thermistor**Charakteristische Werte / Characteristic Values**

			min.	typ.	max.	
Nennwiderstand Rated resistance	$T_{NTC} = 25^{\circ}\text{C}$	R_{25}		5,00		k Ω
Abweichung von R100 Deviation of R100	$T_{NTC} = 100^{\circ}\text{C}, R_{100} = 493 \Omega$	$\Delta R/R$	-5		5	%
Verlustleistung Power dissipation	$T_{NTC} = 25^{\circ}\text{C}$	P_{25}			20,0	mW
B-Wert B-value	$R_2 = R_{25} \exp [B_{25/50}(1/T_2 - 1/(298,15 \text{ K}))]$	$B_{25/50}$		3375		K
B-Wert B-value	$R_2 = R_{25} \exp [B_{25/80}(1/T_2 - 1/(298,15 \text{ K}))]$	$B_{25/80}$		3411		K
B-Wert B-value	$R_2 = R_{25} \exp [B_{25/100}(1/T_2 - 1/(298,15 \text{ K}))]$	$B_{25/100}$		3433		K

Angaben gemäß gültiger Application Note.

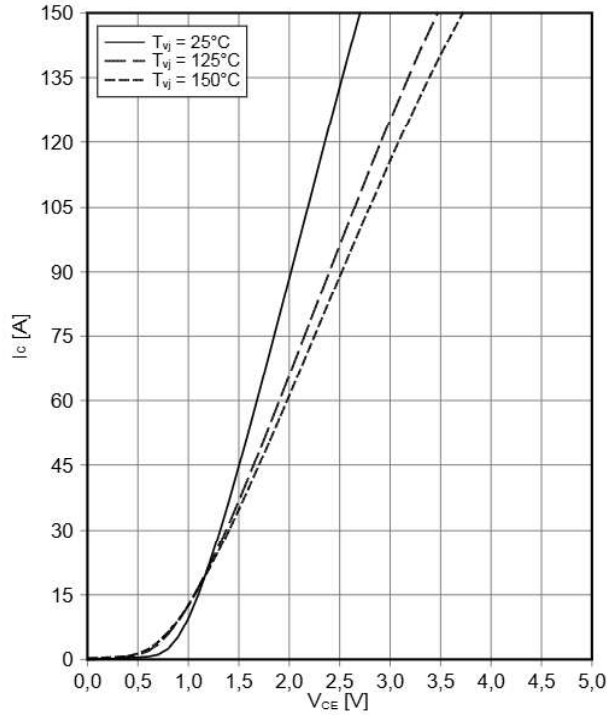
Specification according to the valid application note.

Modul / Module

Isolations-Prüfspannung Isolation test voltage	RMS, f = 50 Hz, t = 1 min.	V_{ISOL}	2,5	kV
Material Modulgrundplatte Material of module baseplate			Cu	
Innere Isolation Internal isolation	Basisisolierung (Schutzklasse 1, EN61140) basic insulation (class 1, IEC 61140)		Al ₂ O ₃	
Kriechstrecke Creepage distance	Kontakt - Kühlkörper / terminal to heatsink Kontakt - Kontakt / terminal to terminal		10,0	mm
Luftstrecke Clearance	Kontakt - Kühlkörper / terminal to heatsink Kontakt - Kontakt / terminal to terminal		7,5	mm
Vergleichszahl der Kriechwegbildung Comperative tracking index		CTI	> 200	
min. typ. max.				
Wärmewiderstand, Gehäuse bis Kühlkörper Thermal resistance, case to heatsink	pro Modul / per module $\lambda_{paste} = 1 \text{ W/(m}\cdot\text{K)} / \lambda_{grease} = 1 \text{ W/(m}\cdot\text{K)}$	R_{thCH}	0,009	K/W
Modulstreuinduktivität Stray inductance module		L_{sCE}	40	nH
Modulleitungswiderstand, Anschlüsse - Chip Module lead resistance, terminals - chip	$T_c = 25^\circ\text{C}$, pro Schalter / per switch	$R_{CC'+EE'}$ $R_{AA'+CC'}$	4,00 3,00	m Ω
Lagertemperatur Storage temperature		T_{stg}	-40	125 °C
Anzugsdrehmoment f. Modulmontage Mounting torque for modul mounting	Schraube M5 - Montage gem. gültiger Applikationsschrift Screw M5 - Mounting according to valid application note	M	3,00	6,00 Nm
Gewicht Weight		G	300	g

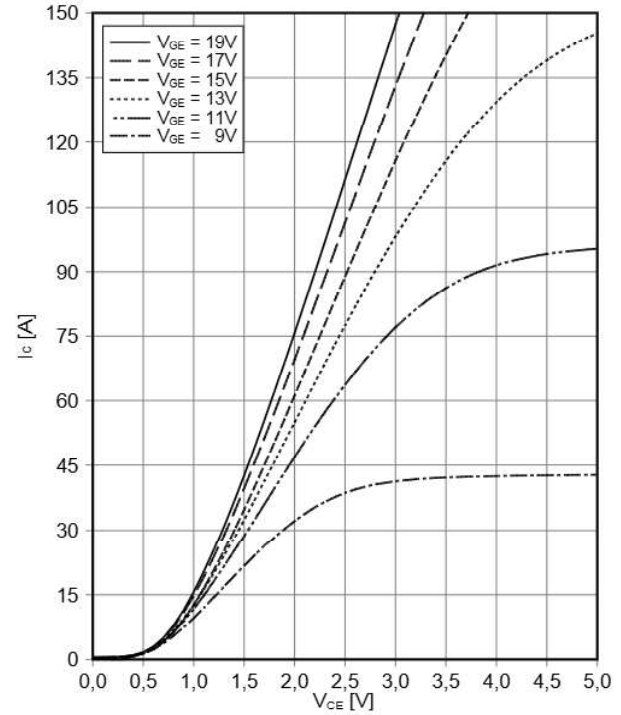
Ausgangskennlinie IGBT, Wechselrichter (typisch)
output characteristic IGBT, Inverter (typical)

$I_C = f(V_{CE})$
 $V_{GE} = 15 \text{ V}$



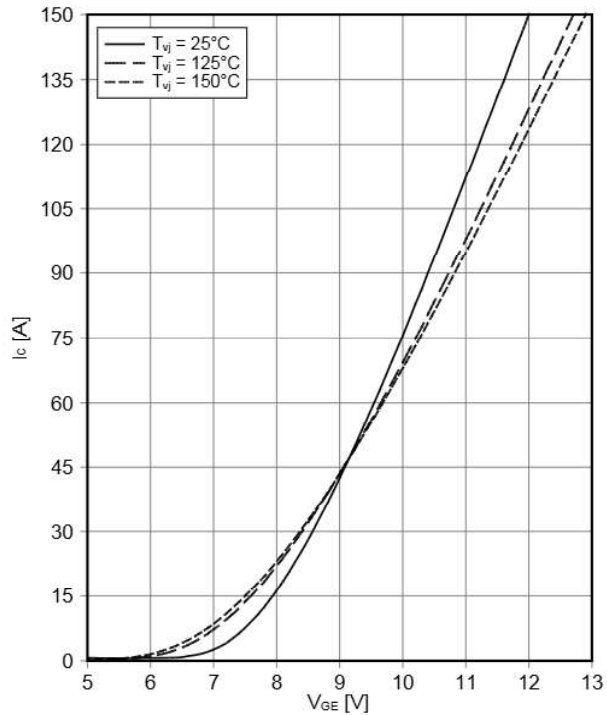
Ausgangskennlinienfeld IGBT, Wechselrichter (typisch)
output characteristic IGBT, Inverter (typical)

$I_C = f(V_{CE})$
 $T_{vj} = 150^\circ\text{C}$



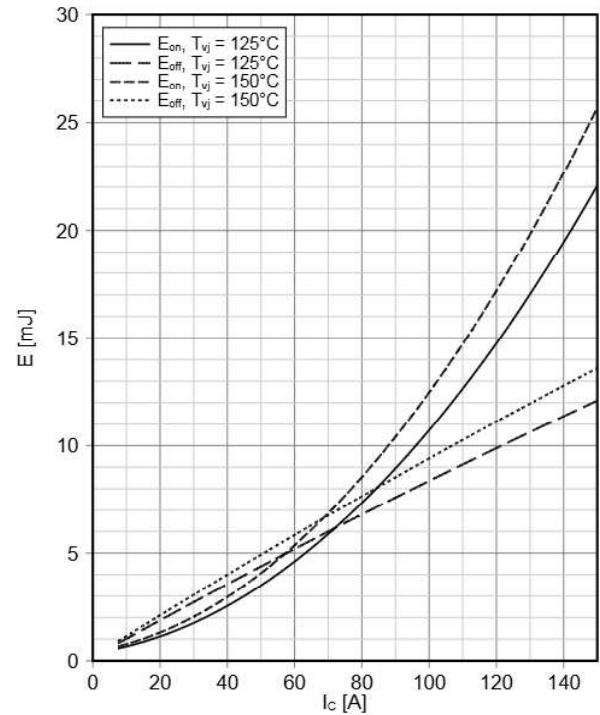
Übertragungscharakteristik IGBT, Wechselrichter (typisch)
transfer characteristic IGBT, Inverter (typical)

$I_C = f(V_{GE})$
 $V_{CE} = 20 \text{ V}$



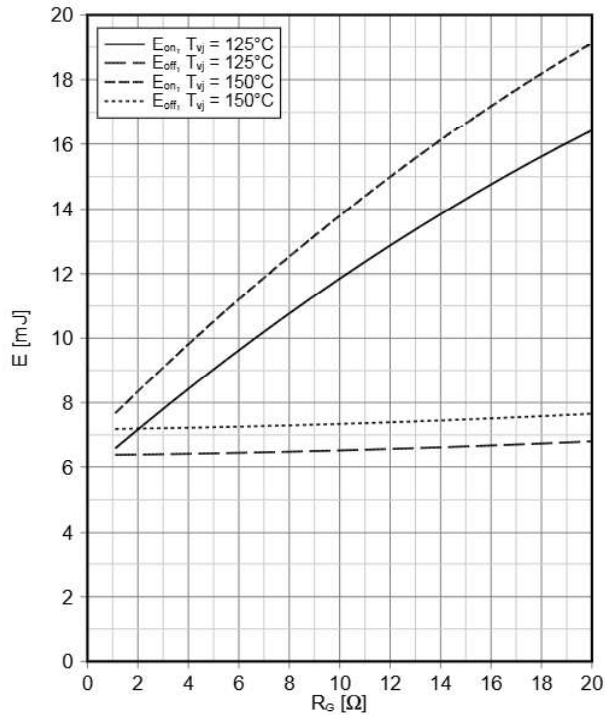
Schaltverluste IGBT, Wechselrichter (typisch)
switching losses IGBT, Inverter (typical)

$E_{on} = f(I_C)$, $E_{off} = f(I_C)$
 $V_{GE} = \pm 15 \text{ V}$, $R_{Gon} = 1.1 \Omega$, $R_{Goff} = 1.1 \Omega$, $V_{CE} = 600 \text{ V}$



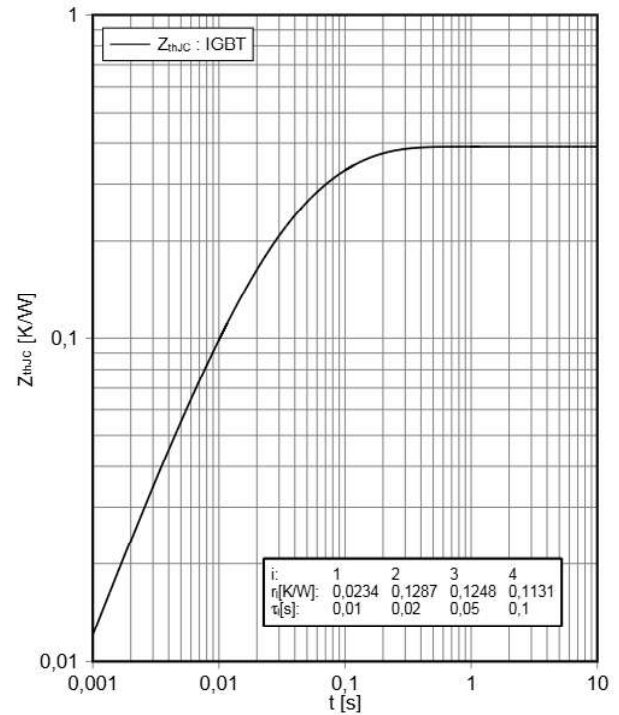
Schaltverluste IGBT, Wechselrichter (typisch) switching losses IGBT, Inverter (typical)

$E_{on} = f(R_G)$, $E_{off} = f(R_G)$
 $V_{GE} = \pm 15 \text{ V}$, $I_C = 75 \text{ A}$, $V_{CE} = 600 \text{ V}$



Transienter Wärmewiderstand IGBT, Wechselrichter transient thermal impedance IGBT, Inverter

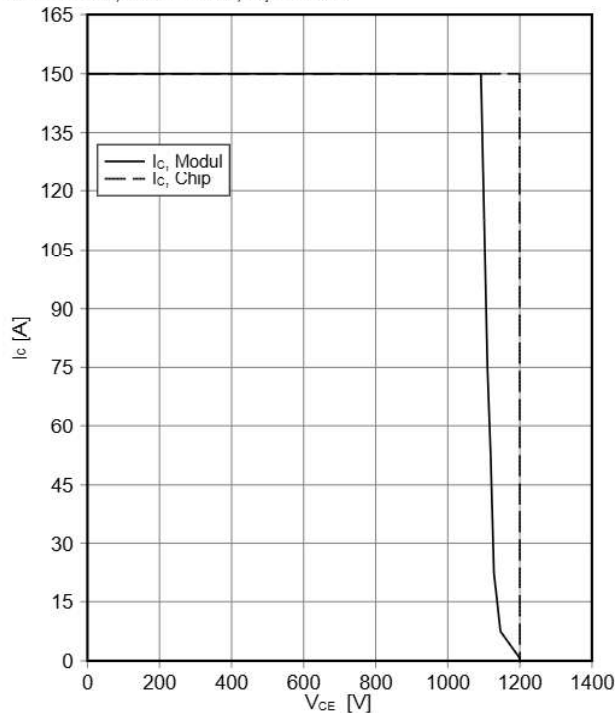
$Z_{thJC} = f(t)$



Sicherer Rückwärts-Arbeitsbereich IGBT, Wechselrichter (RBSOA)

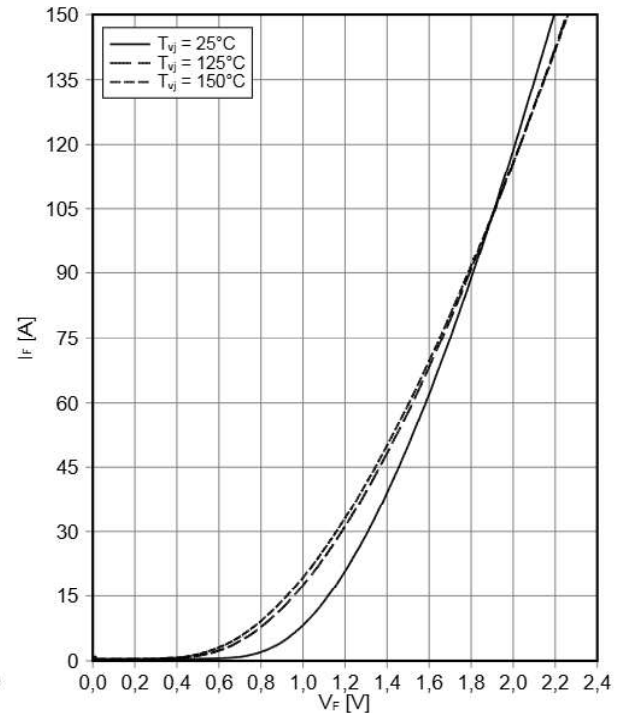
reverse bias safe operating area IGBT, Inverter (RBSOA)

$I_C = f(V_{CE})$
 $V_{GE} = \pm 15 \text{ V}$, $R_{Goff} = 1.1 \Omega$, $T_{vj} = 150^\circ\text{C}$



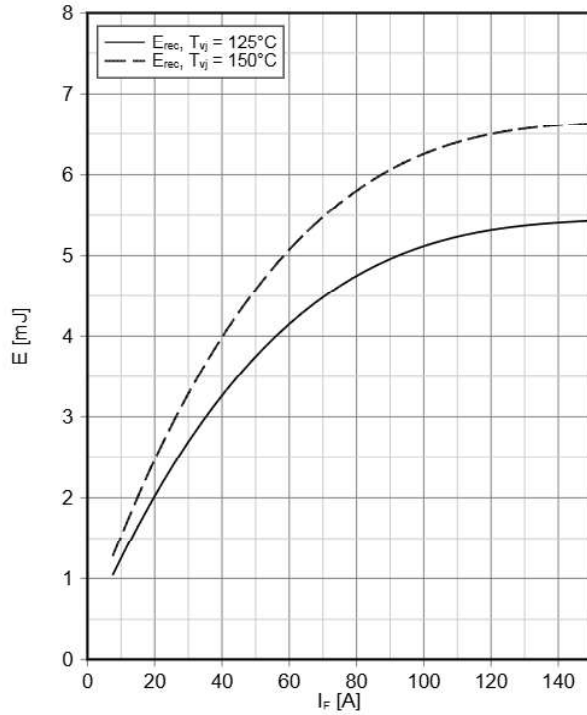
Durchlasskennlinie der Diode, Wechselrichter (typisch) forward characteristic of Diode, Inverter (typical)

$I_F = f(V_F)$



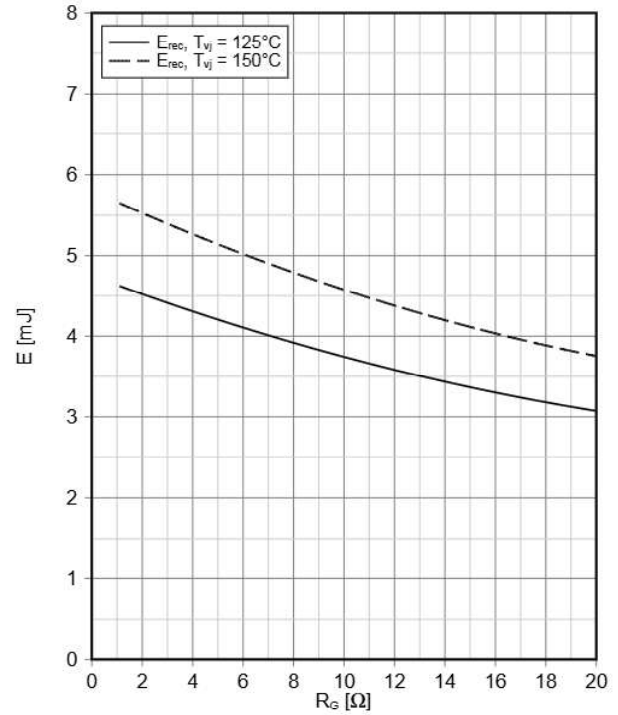
Schaltverluste Diode, Wechselrichter (typisch) switching losses Diode, Inverter (typical)

$E_{rec} = f(I_F)$
 $R_{Gon} = 1.1 \Omega$, $V_{CE} = 600 V$



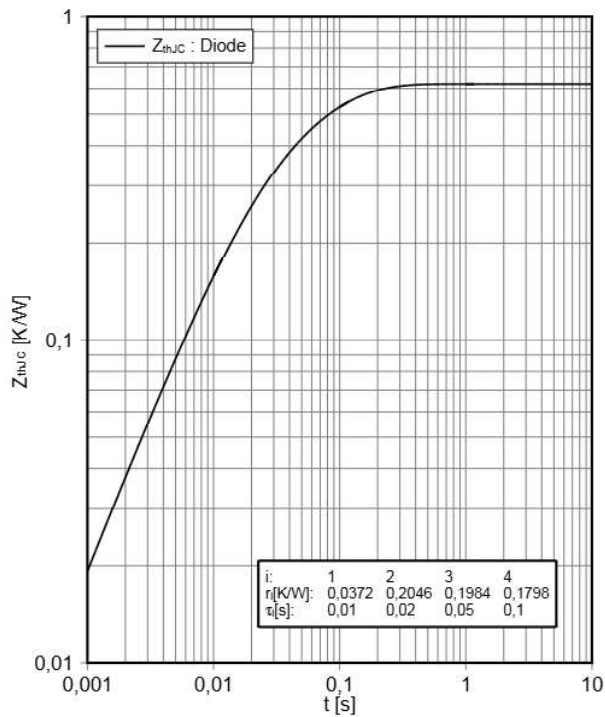
Schaltverluste Diode, Wechselrichter (typisch) switching losses Diode, Inverter (typical)

$E_{rec} = f(R_G)$
 $I_F = 75 A$, $V_{CE} = 600 V$



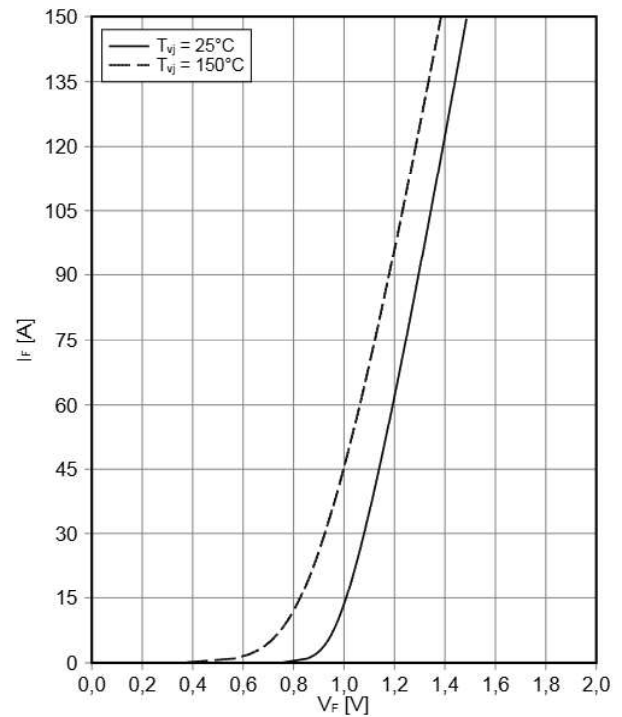
Transienter Wärmewiderstand Diode, Wechselrichter transient thermal impedance Diode, Inverter

$Z_{thJC} = f(t)$



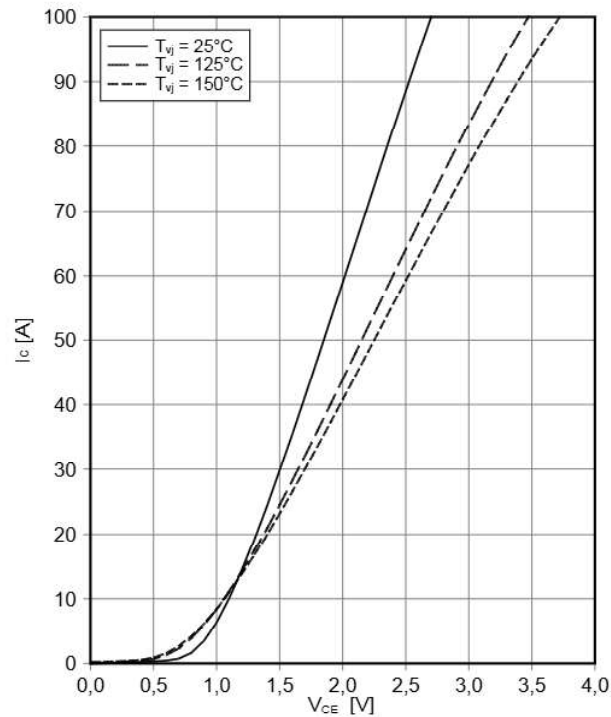
Durchlasskennlinie der Diode, Gleichrichter (typisch) forward characteristic of Diode, Rectifier (typical)

$I_F = f(V_F)$



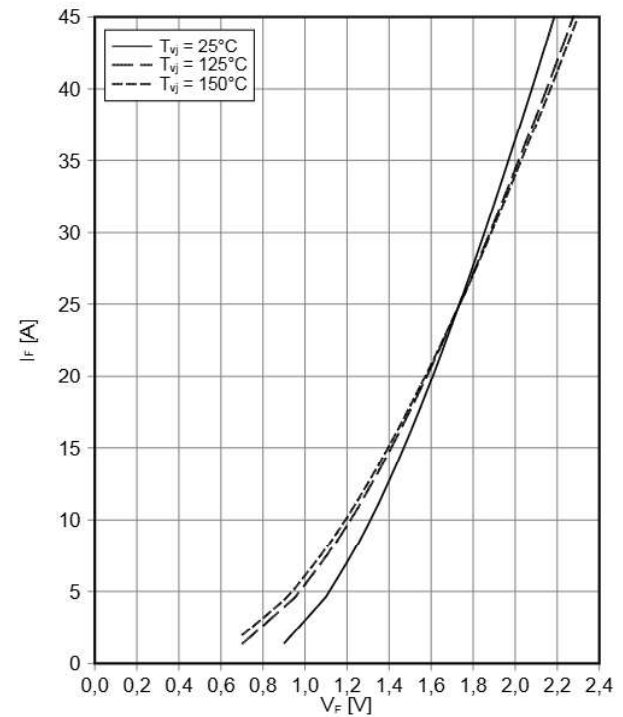
Ausgangskennlinie IGBT, Brems-Chopper (typisch)
output characteristic IGBT, Brake-Chopper (typical)

$I_C = f(V_{CE})$
 $V_{GE} = 15\text{ V}$



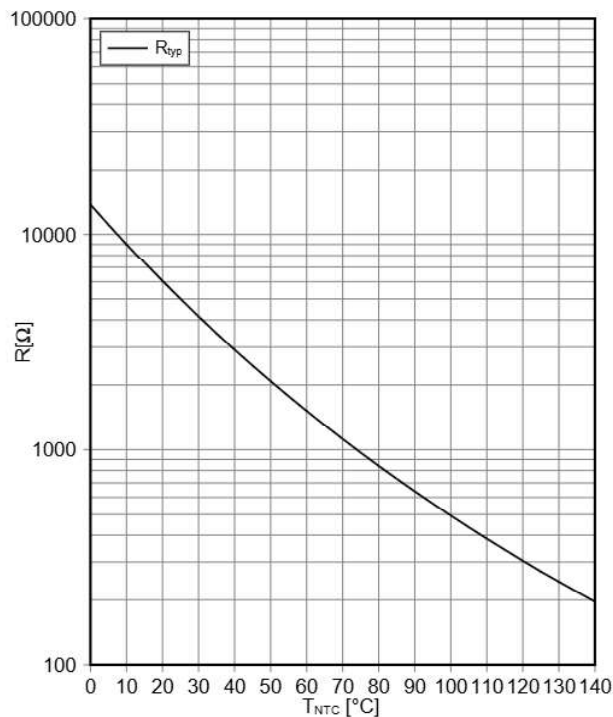
Durchlasskennlinie der Diode, Brems-Chopper (typisch)
forward characteristic of Diode, Brake-Chopper (typical)

$I_F = f(V_F)$

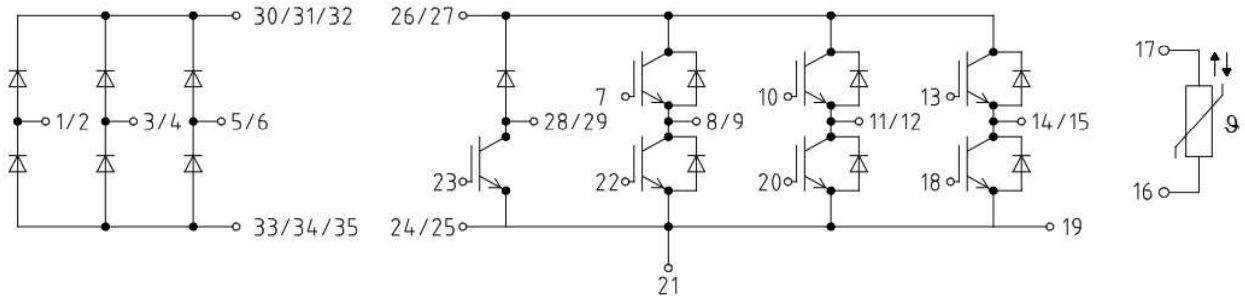


NTC-Widerstand-Temperaturkennlinie (typisch)
NTC-Thermistor-temperature characteristic (typical)

$R = f(T)$



Schaltplan / Circuit diagram



Gehäuseabmessungen / Package outlines

