

ANTREX Electronics

Electronic Components Sourcing Information

Product Reference Information

Part Number: F3L300R12PT4B26COSA1

Manufacturer: Infineon Technologies

Package: Module

Availability: Please confirm with sales

Product Page:

<https://antrexco.com/product/details/infineon-technologies/f3l300r12pt4b26cosa1.html>

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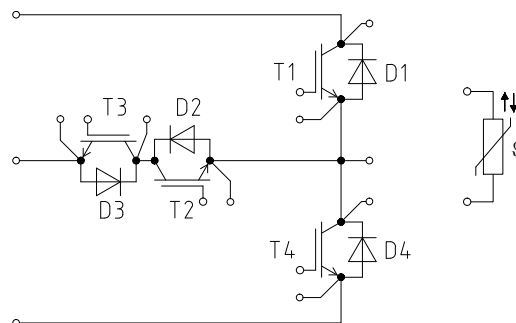
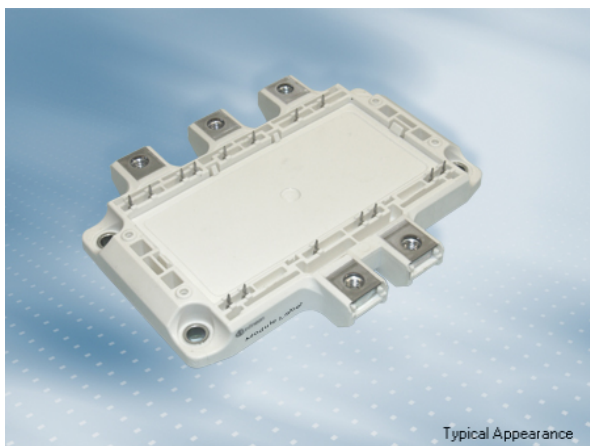
Note:

This PDF includes an ANTREX product reference cover page.

The original manufacturer datasheet follows from the next page.

EconoPACK™4 Modul mit aktiver "Neutral Point Clamp 2" Topologie und PressFIT / NTC
EconoPACK™4 module with active "Neutral Point Clamp 2" topology and PressFIT / NTC

Vorläufige Daten / Preliminary Data



$$V_{CES} = 1200V$$

$$I_{C\ nom} = 300A / I_{CRM} = 600A$$

Typische Anwendungen

- Solar Anwendungen
- USV-Systeme

Typical Applications

- Solar Applications
- UPS Systems

Elektrische Eigenschaften

- Erweiterte Sperrschichttemperatur $T_{vj\ op}$
- Niedrige Schaltverluste
- Niedriges V_{CESat}
- Trench IGBT 4
- $T_{vj\ op} = 150^{\circ}C$
- V_{CESat} mit positivem Temperaturkoeffizienten

Electrical Features

- Extended Operation Temperature $T_{vj\ op}$
- Low Switching Losses
- Low V_{CESat}
- Trench IGBT 4
- $T_{vj\ op} = 150^{\circ}C$
- V_{CESat} with positive Temperature Coefficient

Mechanische Eigenschaften

- Isolierte Bodenplatte
- Kompaktes Design
- PressFIT Verbindungstechnik
- Standardgehäuse

Mechanical Features

- Isolated Base Plate
- Compact design
- PressFIT 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

prepared by: MK	date of publication: 2013-11-11	
approved by: MK	revision: 2.0	UL approved (E83335)

Vorläufige Daten
Preliminary Data

IGBT, T1 / T4 / IGBT, T1 / T4

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	$T_C = 100^{\circ}\text{C}, T_{vj\max} = 175^{\circ}\text{C}$ $T_C = 25^{\circ}\text{C}, T_{vj\max} = 175^{\circ}\text{C}$	$I_{C\text{ nom}}$ I_C	300 460	A A
Periodischer Kollektor-Spitzenstrom Repetitive peak collector current	$t_P = 1\text{ ms}$	I_{CRM}	600	A
Gesamt-Verlustleistung Total power dissipation	$T_C = 25^{\circ}\text{C}, T_{vj\max} = 175^{\circ}\text{C}$	P_{tot}	1650	W
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	$I_C = 300\text{ A}, V_{GE} = 15\text{ V}$ $I_C = 300\text{ A}, V_{GE} = 15\text{ V}$ $I_C = 300\text{ A}, V_{GE} = 15\text{ V}$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	$V_{CE\text{ sat}}$	1,75 2,05 2,10	2,15	V V V
Gate-Schwellenspannung Gate threshold voltage	$I_C = 12,0\text{ mA}, V_{CE} = V_{GE}, T_{vj} = 25^{\circ}\text{C}$		V_{GEth}	5,2	5,8	6,4 V
Gateladung Gate charge	$V_{GE} = -15\text{ V} \dots +15\text{ V}$		Q_G	2,50		μC
Interner Gatewiderstand Internal gate resistor	$T_{vj} = 25^{\circ}\text{C}$		R_{Gint}	2,5		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}	18,5		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}	1,00		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	$I_C = 300\text{ A}, V_{CE} = 300\text{ V}$ $V_{GE} = \pm 15\text{ V}$ $R_{Gon} = 1,5\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	$t_{d\text{ on}}$	0,21 0,23 0,24		μs μs μs
Anstiegszeit, induktive Last Rise time, inductive load	$I_C = 300\text{ A}, V_{CE} = 300\text{ V}$ $V_{GE} = \pm 15\text{ V}$ $R_{Gon} = 1,5\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	t_r	0,09 0,10 0,11		μs μs μs
Abschaltverzögerungszeit, induktive Last Turn-off delay time, inductive load	$I_C = 300\text{ A}, V_{CE} = 300\text{ V}$ $V_{GE} = \pm 15\text{ V}$ $R_{Goff} = 1,5\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	$t_{d\text{ off}}$	0,38 0,46 0,48		μs μs μs
Fallzeit, induktive Last Fall time, inductive load	$I_C = 300\text{ A}, V_{CE} = 300\text{ V}$ $V_{GE} = \pm 15\text{ V}$ $R_{Goff} = 1,5\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	t_f	0,07 0,10 0,11		μs μs μs
Einschaltverlustenergie pro Puls Turn-on energy loss per pulse	$I_C = 300\text{ A}, V_{CE} = 300\text{ V}, L_S = 35\text{ nH}$ $V_{GE} = \pm 15\text{ V}, di/dt = 2300\text{ A}/\mu\text{s} (T_{vj} = 150^{\circ}\text{C})$ $R_{Gon} = 1,5\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	E_{on}	7,80 11,5 12,5		mJ mJ mJ
Abschaltverlustenergie pro Puls Turn-off energy loss per pulse	$I_C = 300\text{ A}, V_{CE} = 300\text{ V}, L_S = 35\text{ nH}$ $V_{GE} = \pm 15\text{ V}, du/dt = 2300\text{ V}/\mu\text{s} (T_{vj} = 150^{\circ}\text{C})$ $R_{Goff} = 1,5\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	E_{off}	13,0 19,0 20,5		mJ mJ mJ
Kurzschlußverhalten SC data	$V_{GE} \leq 15\text{ V}, V_{CC} = 800\text{ V}$ $V_{CE\text{ max}} = V_{CES} - L_{SCE} \cdot di/dt$	$t_P \leq 10\ \mu\text{s}, T_{vj} = 25^{\circ}\text{C}$ $t_P \leq 10\ \mu\text{s}, T_{vj} = 150^{\circ}\text{C}$	I_{SC}	1700 1400		A A
Wärmewiderstand, Chip bis Gehäuse Thermal resistance, junction to case	pro IGBT / per IGBT		R_{thJC}		0,09	K/W
Wärmewiderstand, Gehäuse bis Kühlkörper Thermal resistance, case to heatsink	pro IGBT / per IGBT $\lambda_{\text{Paste}} = 1\text{ W}/(\text{m} \cdot \text{K}) / \lambda_{\text{grease}} = 1\text{ W}/(\text{m} \cdot \text{K})$		R_{thCH}	0,049		K/W
Temperatur im Schaltbetrieb Temperature under switching conditions			$T_{vj\text{ op}}$	-40	150	$^{\circ}\text{C}$

prepared by: MK

date of publication: 2013-11-11

approved by: MK

revision: 2.0

Vorläufige Daten
Preliminary Data
Diode, D2 / D3 / Diode, D2 / D3
Höchstzulässige Werte / Maximum Rated Values

Periodische Spitzensperrspannung Repetitive peak reverse voltage	$T_{vj} = 25^{\circ}\text{C}$	V_{RRM}	650	V
Dauergleichstrom Continuous DC forward current		I_F	300	A
Periodischer Spitzenstrom Repetitive peak forward current	$t_P = 1\text{ ms}$	I_{FRM}	600	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	6700 6150	A^2s A^2s

Charakteristische Werte / Characteristic Values

			min.	typ.	max.	
Durchlassspannung Forward voltage	$I_F = 300\text{ A}, V_{GE} = 0\text{ V}$ $I_F = 300\text{ A}, V_{GE} = 0\text{ V}$ $I_F = 300\text{ A}, V_{GE} = 0\text{ V}$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	V_F	1,45 1,35 1,30	1,85	V V V
Rückstromspitze Peak reverse recovery current	$I_F = 300\text{ A}, -di_F/dt = 2300\text{ A}/\mu\text{s} (T_{vj}=150^{\circ}\text{C})$ $V_R = 300\text{ V}$ $V_{GE} = -15\text{ V}$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	I_{RM}	120 190 200		A A A
Sperrverzögerungsladung Recovered charge	$I_F = 300\text{ A}, -di_F/dt = 2300\text{ A}/\mu\text{s} (T_{vj}=150^{\circ}\text{C})$ $V_R = 300\text{ V}$ $V_{GE} = -15\text{ V}$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	Q_r	9,70 29,0 34,0		μC μC μC
Abschaltenergie pro Puls Reverse recovery energy	$I_F = 300\text{ A}, -di_F/dt = 2300\text{ A}/\mu\text{s} (T_{vj}=150^{\circ}\text{C})$ $V_R = 300\text{ V}$ $V_{GE} = -15\text{ V}$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	E_{rec}	2,40 6,20 7,00		mJ mJ mJ
Wärmewiderstand, Chip bis Gehäuse Thermal resistance, junction to case	pro Diode / per diode		R_{thJC}		0,22	K/W
Wärmewiderstand, Gehäuse bis Kühlkörper Thermal resistance, case to heatsink	pro Diode / per diode $\lambda_{Paste} = 1\text{ W}/(\text{m}\cdot\text{K})$ / $\lambda_{grease} = 1\text{ W}/(\text{m}\cdot\text{K})$		R_{thCH}	0,077		K/W
Temperatur im Schaltbetrieb Temperature under switching conditions			$T_{vj\text{ op}}$	-40	150	$^{\circ}\text{C}$

Vorläufige Daten
Preliminary Data

IGBT, T2 / T3 / IGBT, T2 / T3

Höchstzulässige Werte / Maximum Rated Values

Kollektor-Emitter-Sperrspannung Collector-emitter voltage	$T_{vj} = 25^{\circ}\text{C}$	V_{CES}	650	V
Kollektor-Dauergleichstrom Continuous DC collector current	$T_C = 52^{\circ}\text{C}, T_{vj\max} = 175^{\circ}\text{C}$ $T_C = 25^{\circ}\text{C}, T_{vj\max} = 175^{\circ}\text{C}$	$I_{C\text{ nom}}$ I_C	300 336	A A
Periodischer Kollektor-Spitzenstrom Repetitive peak collector current	$t_P = 1\text{ ms}$	I_{CRM}	600	A
Gesamt-Verlustleistung Total power dissipation	$T_C = 25^{\circ}\text{C}, T_{vj\max} = 175^{\circ}\text{C}$	P_{tot}	880	W
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	$I_C = 300\text{ A}, V_{GE} = 15\text{ V}$ $I_C = 300\text{ A}, V_{GE} = 15\text{ V}$ $I_C = 300\text{ A}, V_{GE} = 15\text{ V}$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	$V_{CE\text{ sat}}$	1,55 1,70 1,75	1,95	V V V
Gate-Schwellenspannung Gate threshold voltage	$I_C = 4,80\text{ mA}, V_{CE} = V_{GE}, T_{vj} = 25^{\circ}\text{C}$		V_{GEth}	4,9	5,8	6,5 V
Gateladung Gate charge	$V_{GE} = -15\text{ V} \dots +15\text{ V}$		Q_G	3,20		μC
Interner Gatewiderstand Internal gate resistor	$T_{vj} = 25^{\circ}\text{C}$		R_{Gint}	1,0		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}	18,5		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}	0,57		nF
Kollektor-Emitter-Reststrom Collector-emitter cut-off current	$V_{CE} = 650\text{ V}, V_{GE} = 0\text{ V}, T_{vj} = 25^{\circ}\text{C}$		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	$I_C = 300\text{ A}, V_{CE} = 300\text{ V}$ $V_{GE} = \pm 15\text{ V}$ $R_{Gon} = 1,5\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	t_{don}	0,08 0,10 0,10		μs μs μs
Anstiegszeit, induktive Last Rise time, inductive load	$I_C = 300\text{ A}, V_{CE} = 300\text{ V}$ $V_{GE} = \pm 15\text{ V}$ $R_{Gon} = 1,5\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	t_r	0,07 0,08 0,08		μs μs μs
Abschaltverzögerungszeit, induktive Last Turn-off delay time, inductive load	$I_C = 300\text{ A}, V_{CE} = 300\text{ V}$ $V_{GE} = \pm 15\text{ V}$ $R_{Goff} = 1,5\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	t_{doff}	0,35 0,38 0,39		μs μs μs
Fallzeit, induktive Last Fall time, inductive load	$I_C = 300\text{ A}, V_{CE} = 300\text{ V}$ $V_{GE} = \pm 15\text{ V}$ $R_{Goff} = 1,5\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	t_f	0,09 0,12 0,12		μs μs μs
Einschaltverlustenergie pro Puls Turn-on energy loss per pulse	$I_C = 300\text{ A}, V_{CE} = 300\text{ V}, L_S = 35\text{ nH}$ $V_{GE} = \pm 15\text{ V}, di/dt = 3150\text{ A}/\mu\text{s} (T_{vj} = 150^{\circ}\text{C})$ $R_{Gon} = 1,5\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	E_{on}	4,50 6,80 7,95		mJ mJ mJ
Abschaltverlustenergie pro Puls Turn-off energy loss per pulse	$I_C = 300\text{ A}, V_{CE} = 300\text{ V}, L_S = 35\text{ nH}$ $V_{GE} = \pm 15\text{ V}, du/dt = 3350\text{ V}/\mu\text{s} (T_{vj} = 150^{\circ}\text{C})$ $R_{Goff} = 1,5\ \Omega$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	E_{off}	14,5 19,0 20,0		mJ mJ mJ
Kurzschlußverhalten SC data	$V_{GE} \leq 15\text{ V}, V_{CC} = 360\text{ V}$ $V_{CE\text{ max}} = V_{CES} - L_{SCE} \cdot di/dt$	$t_P \leq 10\ \mu\text{s}, T_{vj} = 25^{\circ}\text{C}$ $t_P \leq 10\ \mu\text{s}, T_{vj} = 150^{\circ}\text{C}$	I_{SC}	1800 1400		A A
Wärmewiderstand, Chip bis Gehäuse Thermal resistance, junction to case	pro IGBT / per IGBT		R_{thJC}		0,17	K/W
Wärmewiderstand, Gehäuse bis Kühlkörper Thermal resistance, case to heatsink	pro IGBT / per IGBT $\lambda_{\text{Paste}} = 1\text{ W}/(\text{m} \cdot \text{K}) / \lambda_{\text{grease}} = 1\text{ W}/(\text{m} \cdot \text{K})$		R_{thCH}	0,074		K/W
Temperatur im Schaltbetrieb Temperature under switching conditions			$T_{vj\text{ op}}$	-40	150	$^{\circ}\text{C}$

prepared by: MK

date of publication: 2013-11-11

approved by: MK

revision: 2.0

Vorläufige Daten
Preliminary Data

Diode, D1 / D4 / Diode, D1 / D4

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	300	A
Periodischer Spitzenstrom Repetitive peak forward current	$t_P = 1\text{ ms}$	I_{FRM}	600	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	15500 11500	A^2s A^2s

Charakteristische Werte / Characteristic Values

			min.	typ.	max.	
Durchlassspannung Forward voltage	$I_F = 300\text{ A}, V_{GE} = 0\text{ V}$ $I_F = 300\text{ A}, V_{GE} = 0\text{ V}$ $I_F = 300\text{ A}, V_{GE} = 0\text{ V}$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	V_F	1,65 1,65 1,65	2,15	V V V
Rückstromspitze Peak reverse recovery current	$I_F = 300\text{ A}, -di_F/dt = 3150\text{ A}/\mu\text{s} (T_{vj}=150^{\circ}\text{C})$ $V_R = 300\text{ V}$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	I_{RM}	215 275 290		A A A
Sperrverzögerungsladung Recovered charge	$I_F = 300\text{ A}, -di_F/dt = 3150\text{ A}/\mu\text{s} (T_{vj}=150^{\circ}\text{C})$ $V_R = 300\text{ V}$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	Q_r	30,5 57,0 66,0		μC μC μC
Abschaltenergie pro Puls Reverse recovery energy	$I_F = 300\text{ A}, -di_F/dt = 3150\text{ A}/\mu\text{s} (T_{vj}=150^{\circ}\text{C})$ $V_R = 300\text{ V}$	$T_{vj} = 25^{\circ}\text{C}$ $T_{vj} = 125^{\circ}\text{C}$ $T_{vj} = 150^{\circ}\text{C}$	E_{rec}	8,95 17,0 19,5		mJ mJ mJ
Wärmewiderstand, Chip bis Gehäuse Thermal resistance, junction to case	pro Diode / per diode		R_{thJC}		0,16	K/W
Wärmewiderstand, Gehäuse bis Kühlkörper Thermal resistance, case to heatsink	pro Diode / per diode $\lambda_{Paste} = 1\text{ W}/(\text{m}\cdot\text{K})$ / $\lambda_{grease} = 1\text{ W}/(\text{m}\cdot\text{K})$		R_{thCH}	0,056		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	$T_C = 25^{\circ}\text{C}$	R_{25}		5,00		k Ω
Abweichung von R100 Deviation of R100	$T_C = 100^{\circ}\text{C}, R_{100} = 493\text{ }\Omega$	$\Delta R/R$	-5		5	%
Verlustleistung Power dissipation	$T_C = 25^{\circ}\text{C}$	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.

prepared by: MK	date of publication: 2013-11-11
approved by: MK	revision: 2.0

Vorläufige Daten
Preliminary Data
Modul / Module

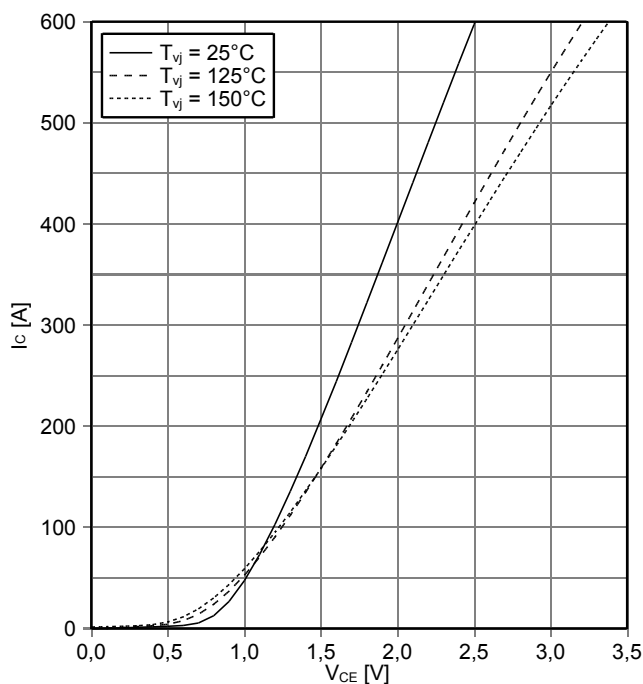
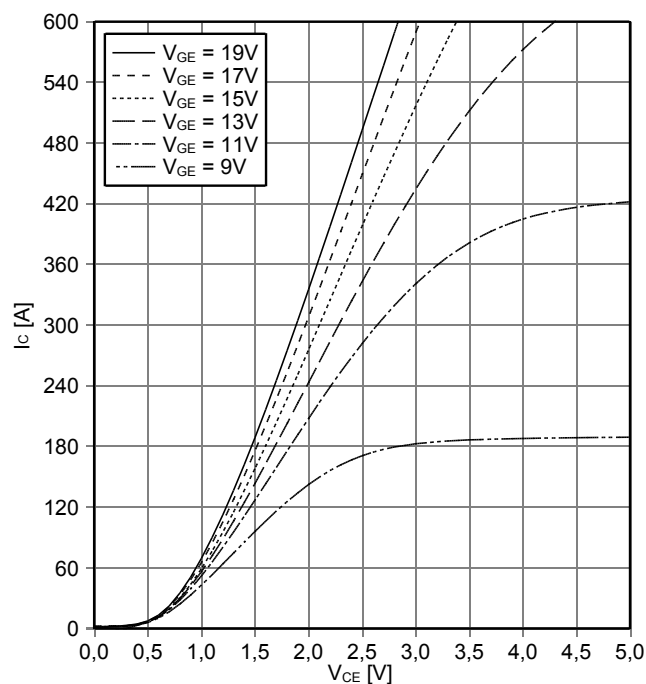
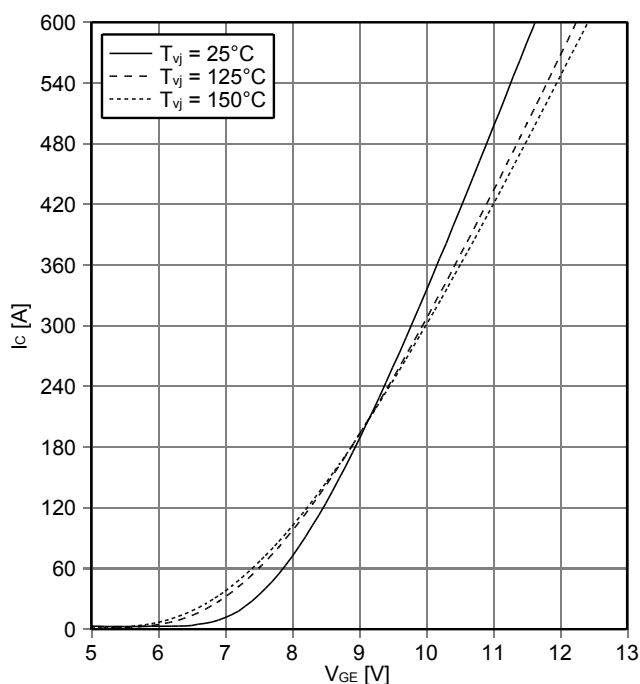
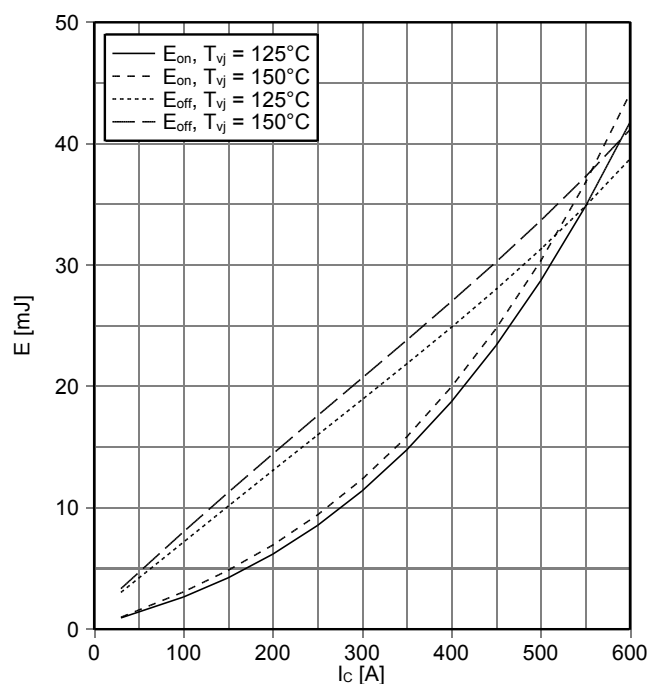
Isolations-Prüfspannung Isolation test voltage	RMS, f = 50 Hz, t = 1 min.	V _{ISOL}	2,5		kV
Material Modulgrundplatte Material of module baseplate			Cu		
Innere Isolation Internal isolation	Basisisolation (Schutzklasse 1, EN61140) basic insulation (class 1, IEC 61140)		Al ₂ O ₃		
Kriechstrecke Creepage distance	Kontakt - Kühlkörper / terminal to heatsink Kontakt - Kontakt / terminal to terminal		25,0 12,5		mm
Luftstrecke Clearance	Kontakt - Kühlkörper / terminal to heatsink Kontakt - Kontakt / terminal to terminal		11,0 7,0		mm
Vergleichszahl der Kriechwegbildung Comperative tracking index		CTI	> 200		
			min.	typ.	max.
Modulstreuinduktivität Stray inductance module		L _{sCE}		38	nH
Modulleitungswiderstand, Anschlüsse - Chip Module lead resistance, terminals - chip	T _C = 25°C, pro Schalter / per switch	R _{CC'+EE'}		0,75	mΩ
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
Anzugsdrehmoment f. elektr. Anschlüsse Terminal connection torque	Schraube M6 - Montage gem. gültiger Applikationsschrift Screw M6 - Mounting according to valid application note	M	3,0	-	6,0 Nm
Gewicht Weight		G		400	g

prepared by: MK

date of publication: 2013-11-11

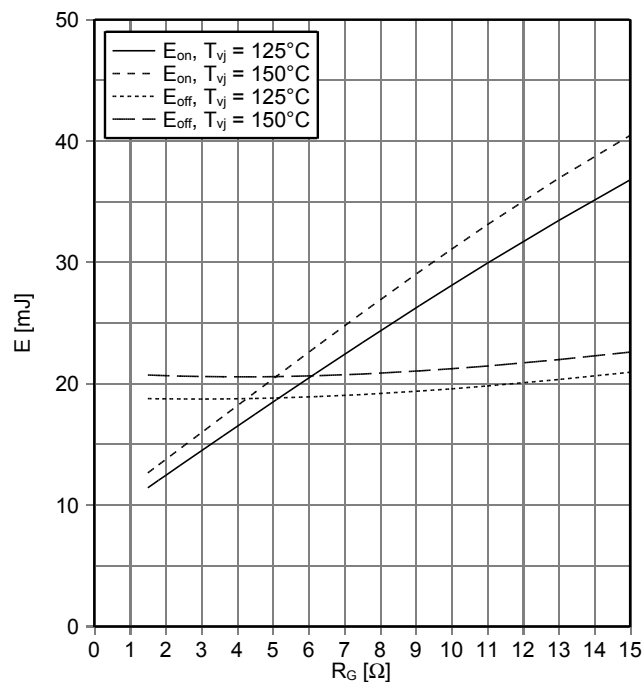
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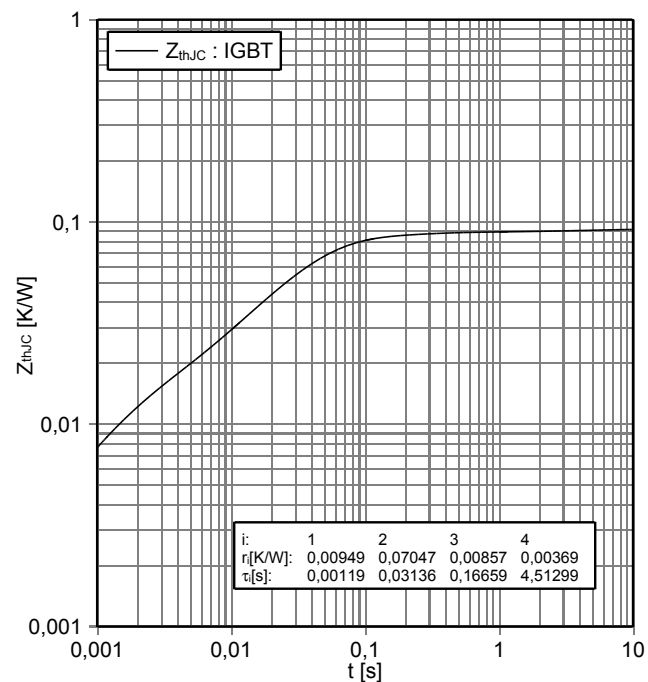
Vorläufige Daten
Preliminary DataAusgangskennlinie IGBT, T1 / T4 (typisch)
output characteristic IGBT, T1 / T4 (typical) $I_C = f(V_{CE})$
 $V_{GE} = 15\text{ V}$ Ausgangskennlinienfeld IGBT, T1 / T4 (typisch)
output characteristic IGBT, T1 / T4 (typical) $I_C = f(V_{CE})$
 $T_{vj} = 150^\circ\text{C}$ Übertragungscharakteristik IGBT, T1 / T4 (typisch)
transfer characteristic IGBT, T1 / T4 (typical) $I_C = f(V_{GE})$
 $V_{CE} = 20\text{ V}$ Schaltverluste IGBT, T1 / T4 (typisch)
switching losses IGBT, T1 / T4 (typical) $E_{on} = f(I_C)$, $E_{off} = f(I_C)$
 $V_{GE} = \pm 15\text{ V}$, $R_{Gon} = 1.5\ \Omega$, $R_{Goff} = 1.5\ \Omega$, $V_{CE} = 300\text{ V}$ 

Vorläufige Daten Preliminary Data

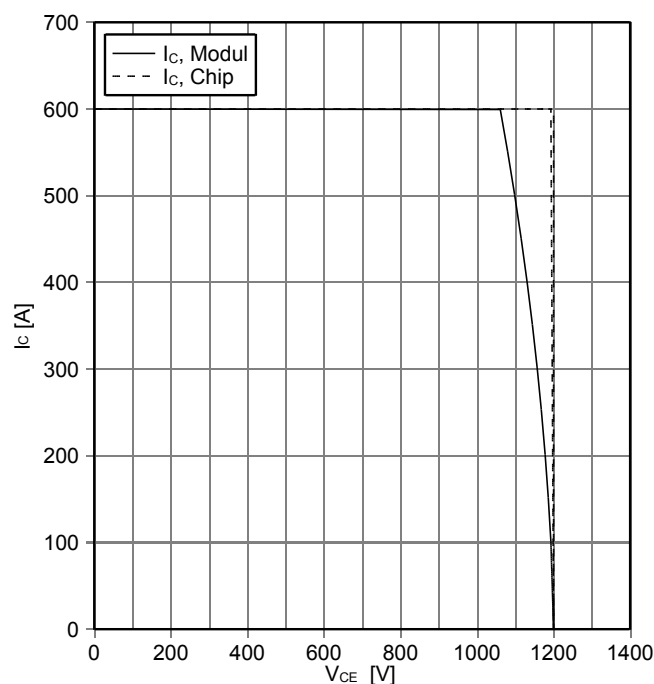
Schaltverluste IGBT, T1 / T4 (typisch) switching losses IGBT, T1 / T4 (typical)

 $E_{on} = f(R_G)$, $E_{off} = f(R_G)$
 $V_{GE} = \pm 15 \text{ V}$, $I_C = 300 \text{ A}$, $V_{CE} = 300 \text{ V}$


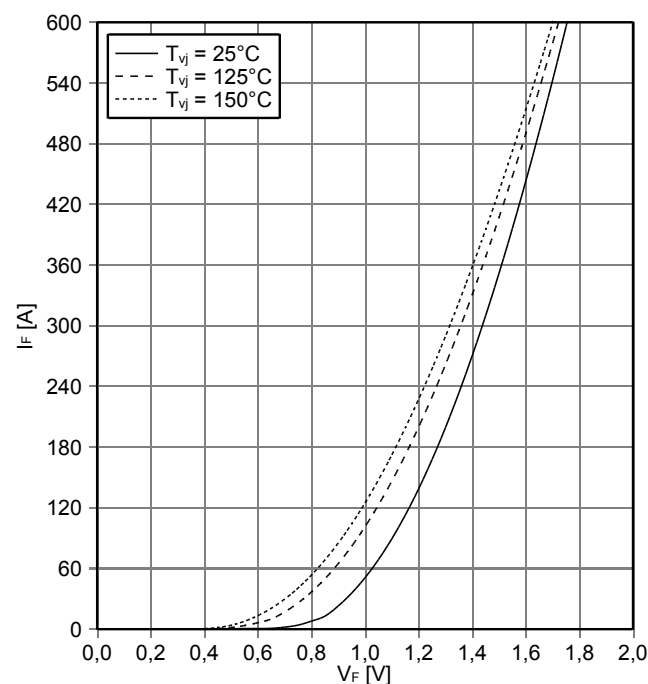
Transienter Wärmewiderstand IGBT, T1 / T4 transient thermal impedance IGBT, T1 / T4

 $Z_{thJC} = f(t)$


Sicherer Rückwärts-Arbeitsbereich IGBT, T1 / T4 (RBSOA) reverse bias safe operating area IGBT, T1 / T4 (RBSOA)

 $I_C = f(V_{CE})$
 $V_{GE} = \pm 15 \text{ V}$, $R_{Goff} = 1.5 \Omega$, $T_{vj} = 150^\circ\text{C}$


Durchlasskennlinie der Diode, D2 / D3 (typisch) forward characteristic of Diode, D2 / D3 (typical)

 $I_F = f(V_F)$


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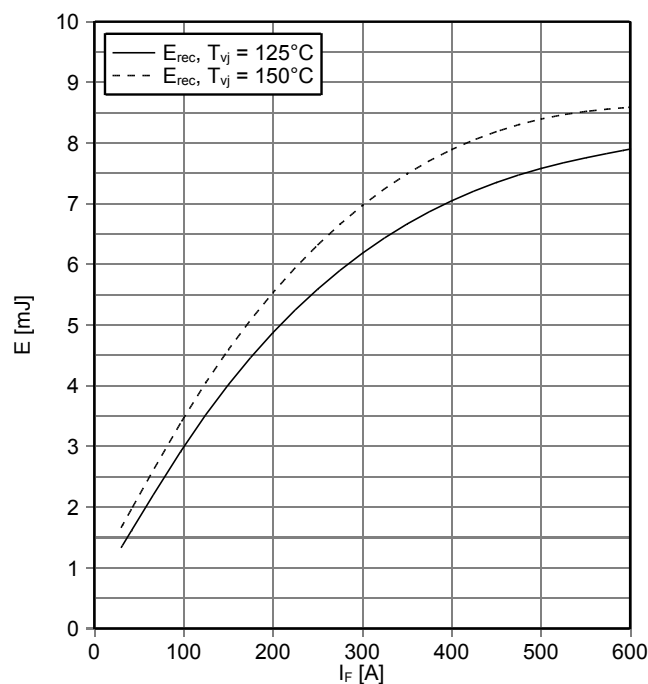
date of publication: 2013-11-11

revision: 2.0

Vorläufige Daten
Preliminary DataSchaltverluste Diode, D2 / D3 (typisch)
switching losses Diode, D2 / D3 (typical)

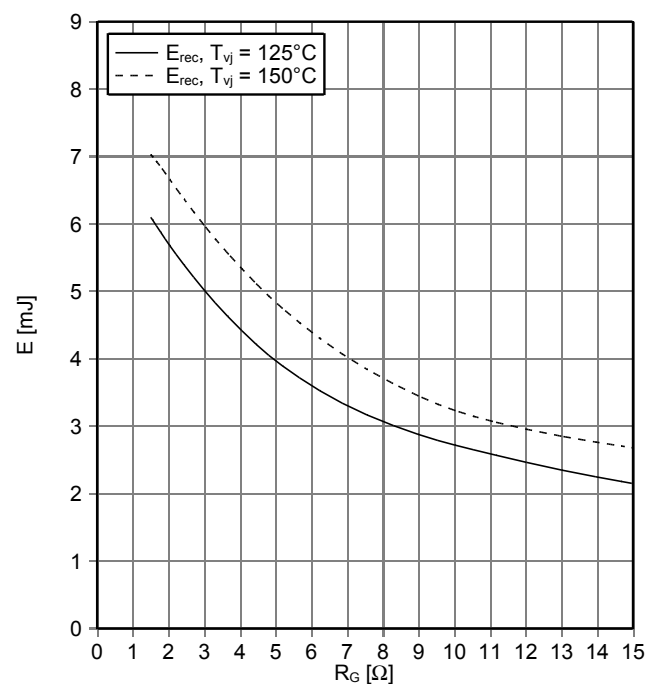
$E_{\text{rec}} = f(I_F)$

$R_{\text{Gon}} = 1.5 \, \Omega, V_{\text{CE}} = 300 \, \text{V}$

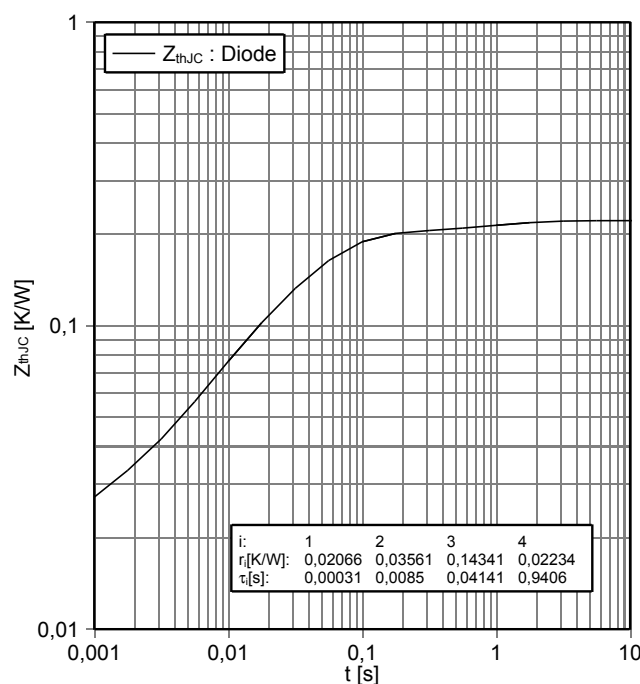
Schaltverluste Diode, D2 / D3 (typisch)
switching losses Diode, D2 / D3 (typical)

$E_{\text{rec}} = f(R_G)$

$I_F = 300 \, \text{A}, V_{\text{CE}} = 300 \, \text{V}$

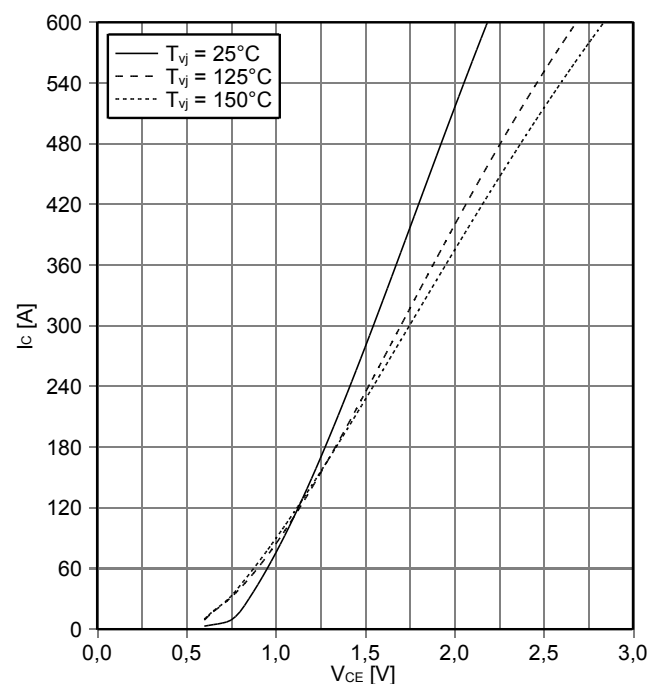
Transienter Wärmewiderstand Diode, D2 / D3
transient thermal impedance Diode, D2 / D3

$Z_{\text{thJC}} = f(t)$

Ausgangskennlinie IGBT, T2 / T3 (typisch)
output characteristic IGBT, T2 / T3 (typical)

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

$V_{\text{GE}} = 15 \, \text{V}$

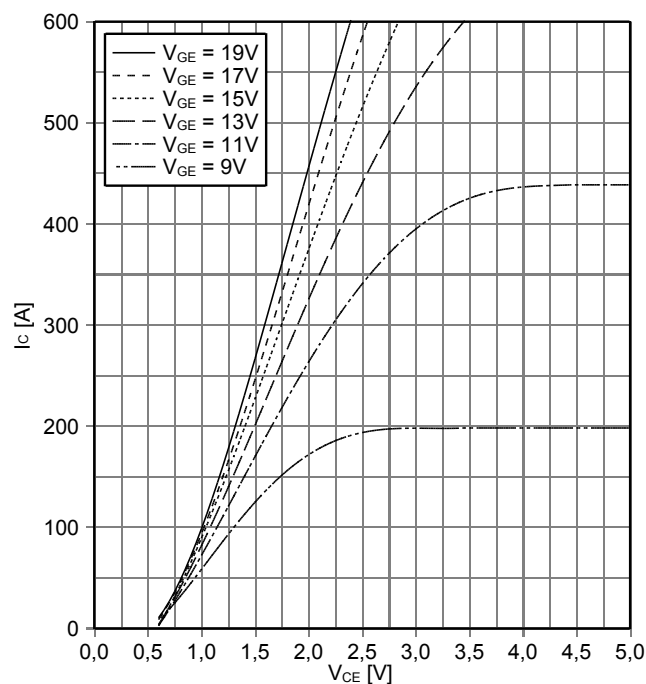
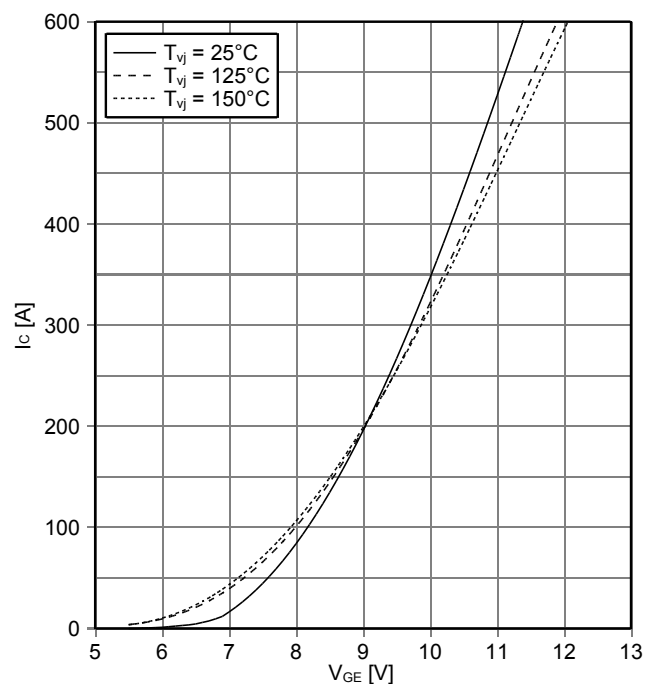
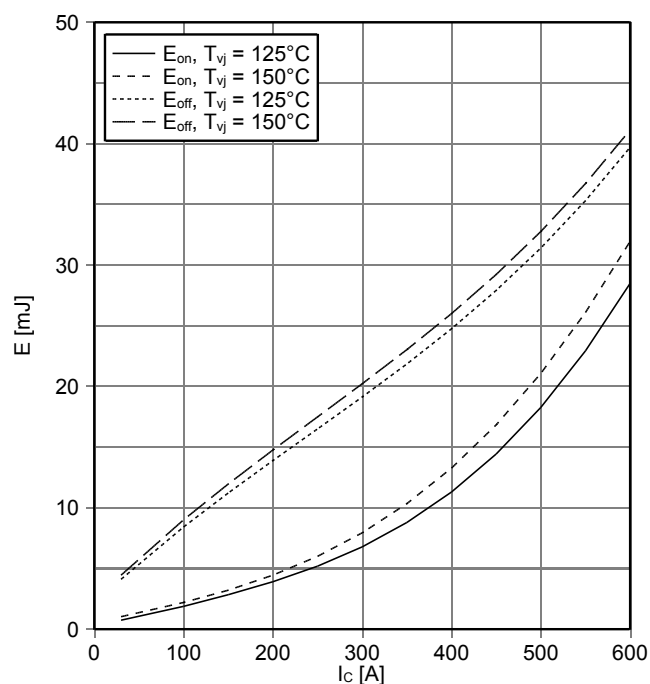
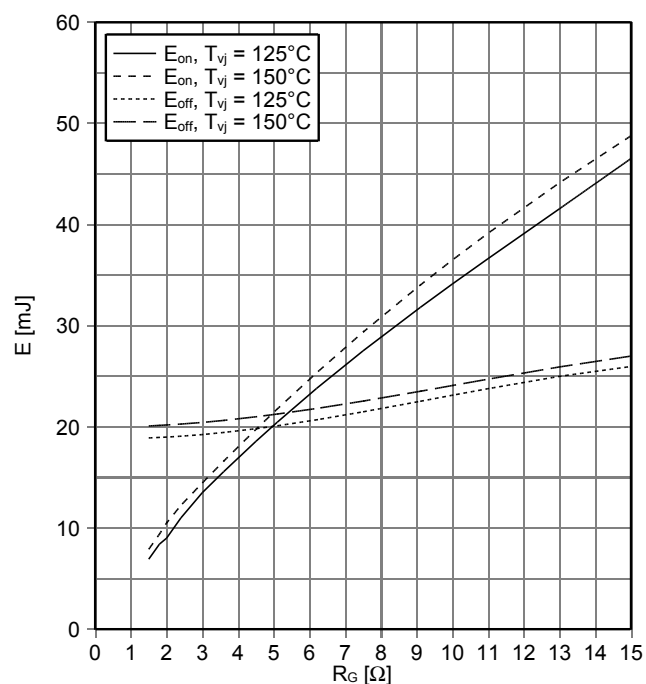


prepared by: MK

date of publication: 2013-11-11

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Vorläufige Daten
Preliminary DataAusgangskennlinienfeld IGBT, T2 / T3 (typisch)
output characteristic IGBT, T2 / T3 (typical)
 $I_C = f(V_{CE})$
 $T_{vj} = 150^\circ\text{C}$
Übertragungscharakteristik IGBT, T2 / T3 (typisch)
transfer characteristic IGBT, T2 / T3 (typical)
 $I_C = f(V_{GE})$
 $V_{CE} = 20\text{ V}$
Schaltverluste IGBT, T2 / T3 (typisch)
switching losses IGBT, T2 / T3 (typical)
 $E_{on} = f(I_C)$, $E_{off} = f(I_C)$
 $V_{GE} = \pm 15\text{ V}$, $R_{Gon} = 1.5\ \Omega$, $R_{Goff} = 1.5\ \Omega$, $V_{CE} = 300\text{ V}$
Schaltverluste IGBT, T2 / T3 (typisch)
switching losses IGBT, T2 / T3 (typical)
 $E_{on} = f(R_G)$, $E_{off} = f(R_G)$
 $V_{GE} = \pm 15\text{ V}$, $I_C = 300\text{ A}$, $V_{CE} = 300\text{ V}$


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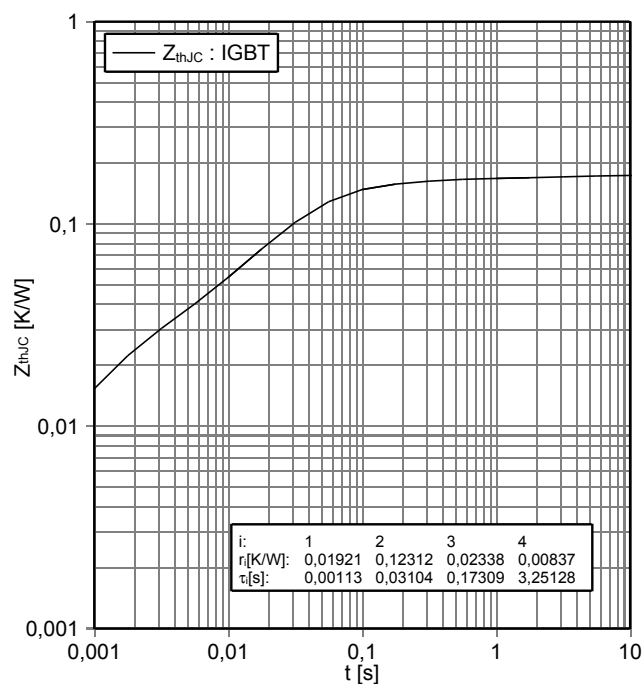
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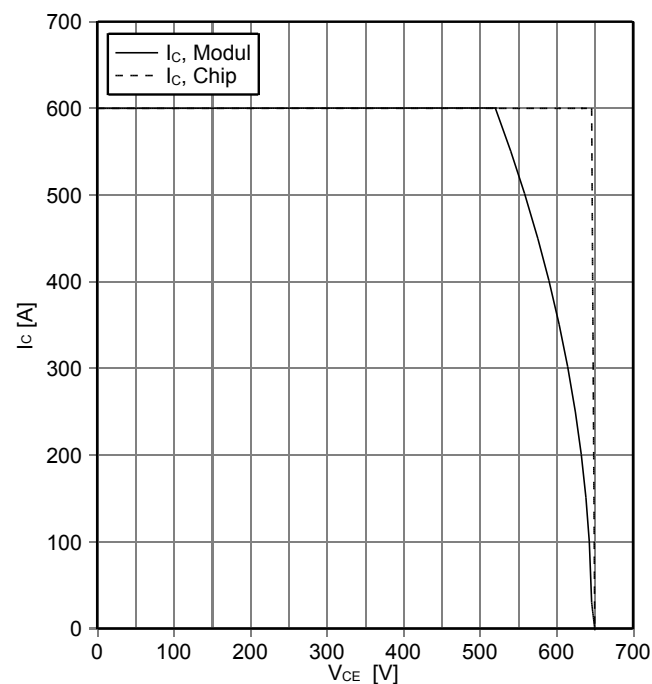
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Vorläufige Daten Preliminary Data

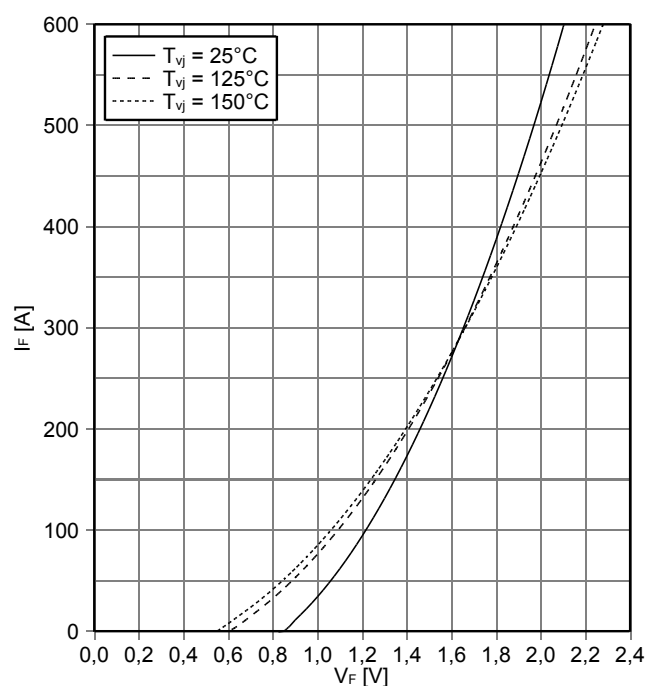
Transienter Wärmewiderstand IGBT, T2 / T3 transient thermal impedance IGBT, T2 / T3

 $Z_{thJC} = f(t)$


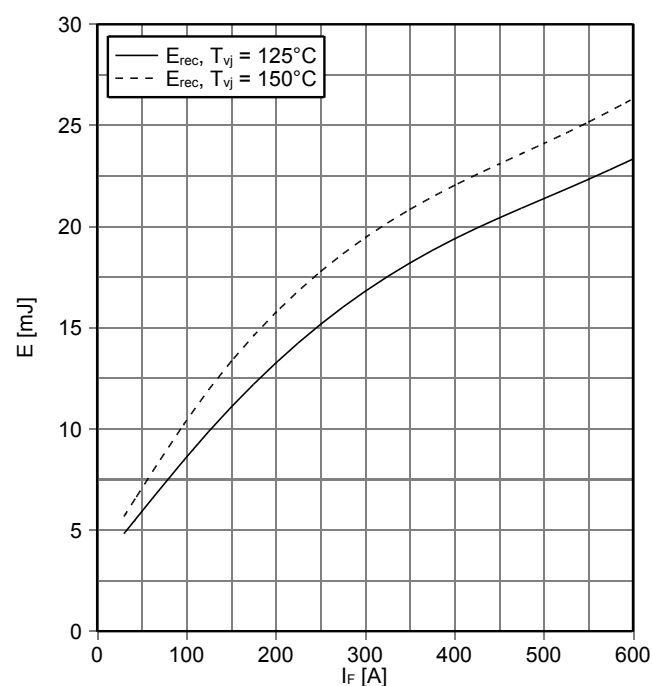
Sicherer Rückwärts-Arbeitsbereich IGBT, T2 / T3 (RBSOA) reverse bias safe operating area IGBT, T2 / T3 (RBSOA)

 $I_C = f(V_{CE})$
 $V_{GE} = \pm 15 \text{ V}, R_{Goff} = 1.5 \Omega, T_{vj} = 150^\circ\text{C}$


Durchlasskennlinie der Diode, D1 / D4 (typisch) forward characteristic of Diode, D1 / D4 (typical)

 $I_F = f(V_F)$


Schaltverluste Diode, D1 / D4 (typisch) switching losses Diode, D1 / D4 (typical)

 $E_{rec} = f(I_F)$
 $R_{Gon} = 1.5 \Omega, V_{CE} = 300 \text{ V}$


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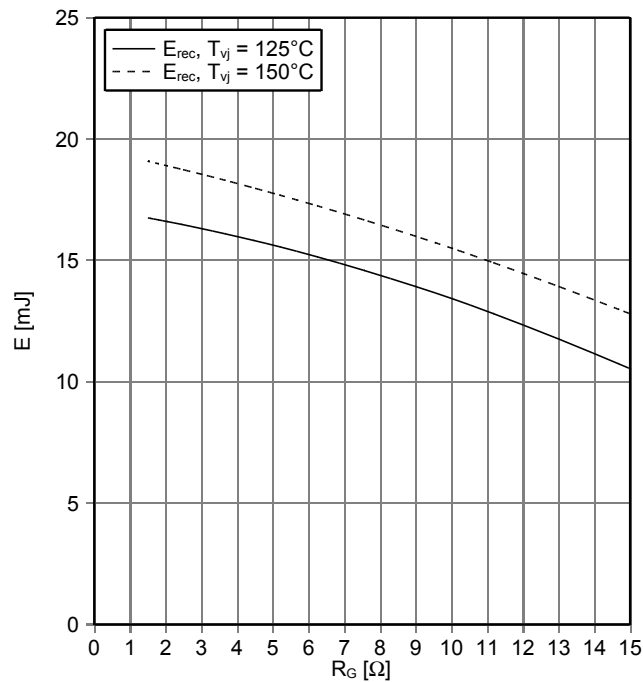
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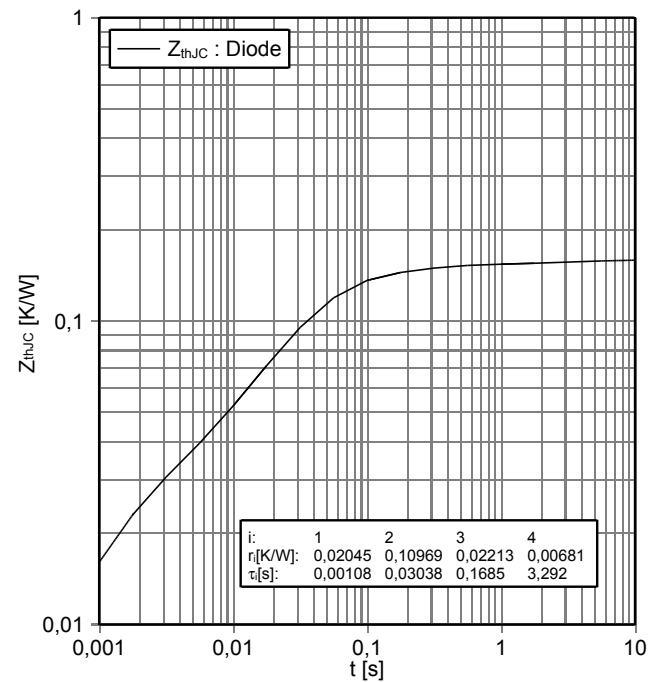
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Vorläufige Daten Preliminary Data

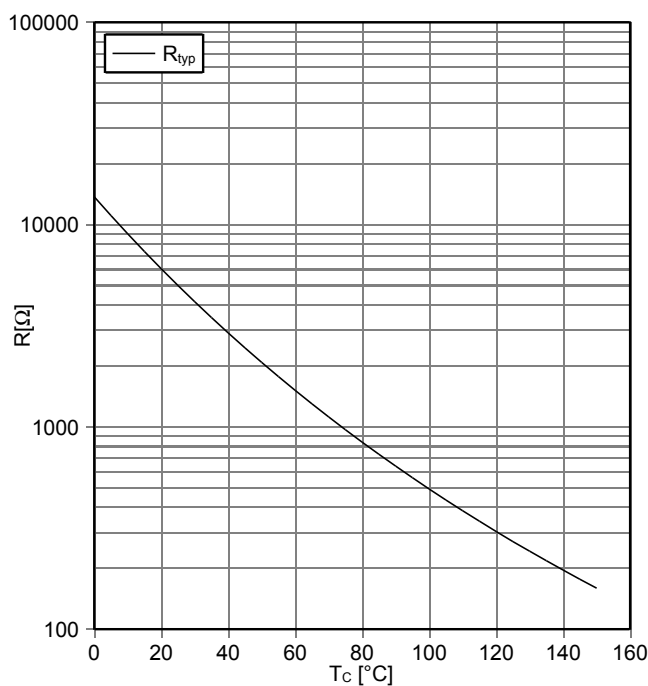
Schaltverluste Diode, D1 / D4 (typisch) switching losses Diode, D1 / D4 (typical)

 $E_{rec} = f(R_G)$
 $I_F = 300\text{ A}$, $V_{CE} = 300\text{ V}$


Transienter Wärmewiderstand Diode, D1 / D4 transient thermal impedance Diode, D1 / D4

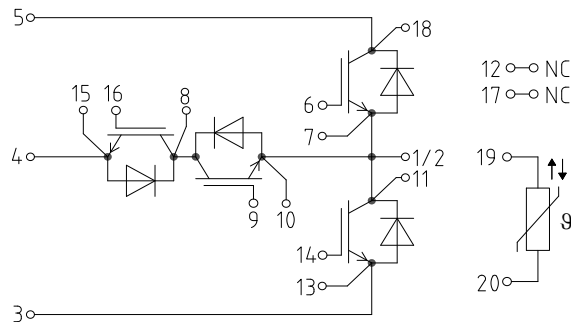
 $Z_{thJC} = f(t)$


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

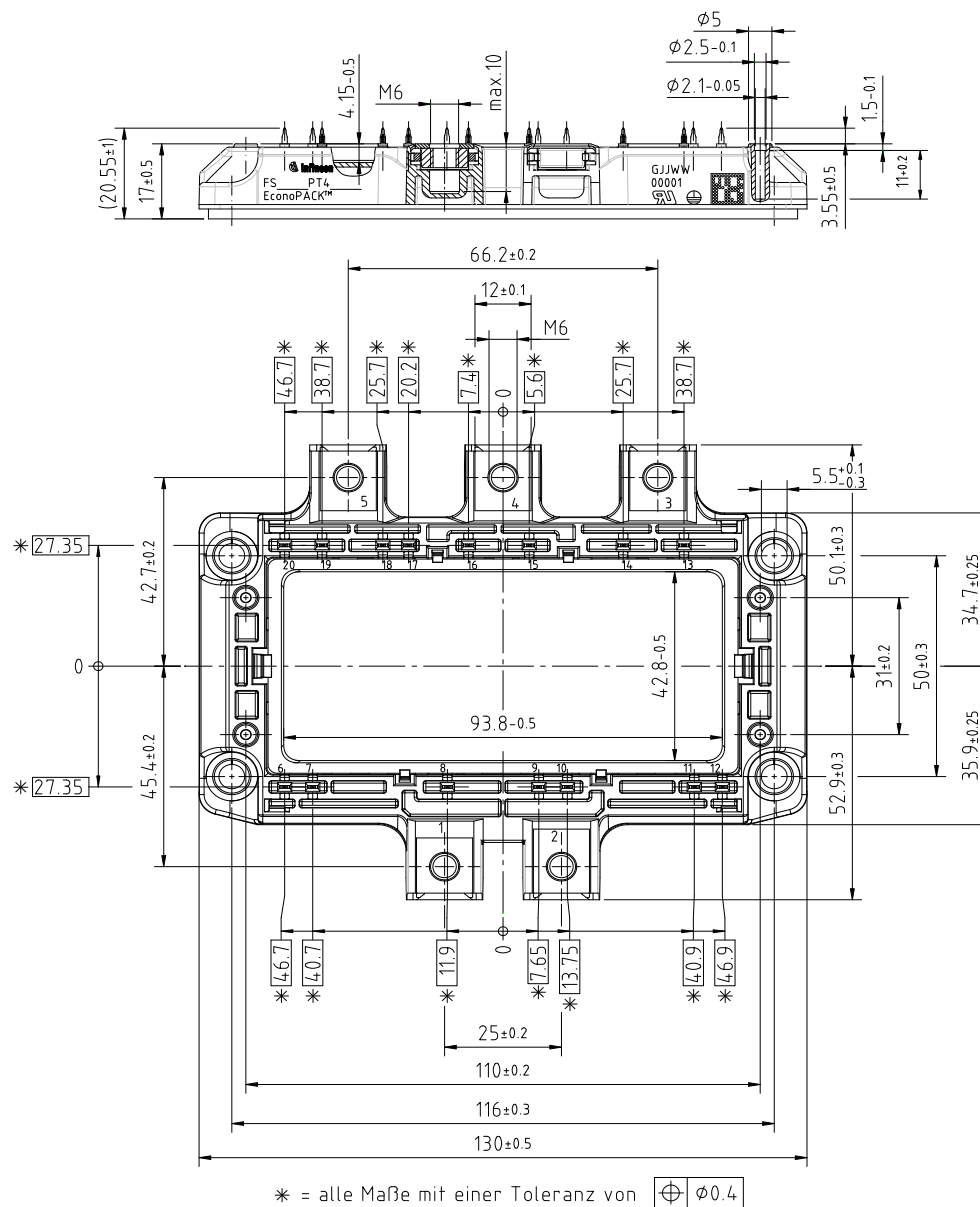
 $R = f(T)$


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Schaltplan / circuit_diagram_headline



Gehäuseabmessungen / package outlines



Vorläufige Daten Preliminary Data

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- the conclusion of Quality Agreements;
- to establish joint measures of an ongoing product survey, and that we may make delivery depended on the realization of any such measures.

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