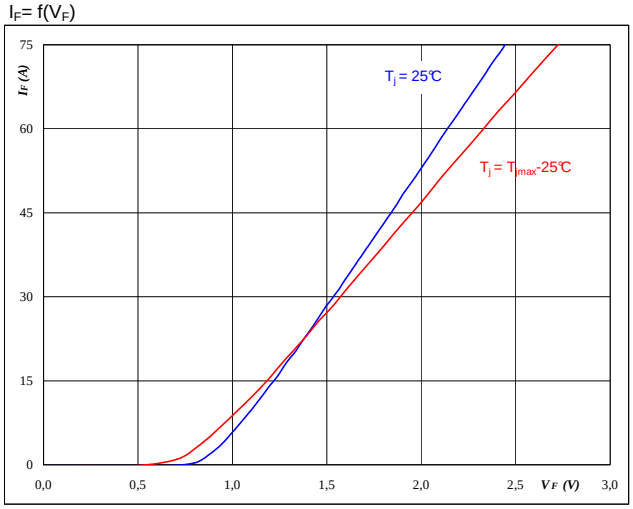
D7,D8,D9,D10,D11,D12

Figure 1 D7,D8,D9,D10,D11,D12 diode

Typical diode forward current as a function of forward voltage

$I_F = f(V_F)$

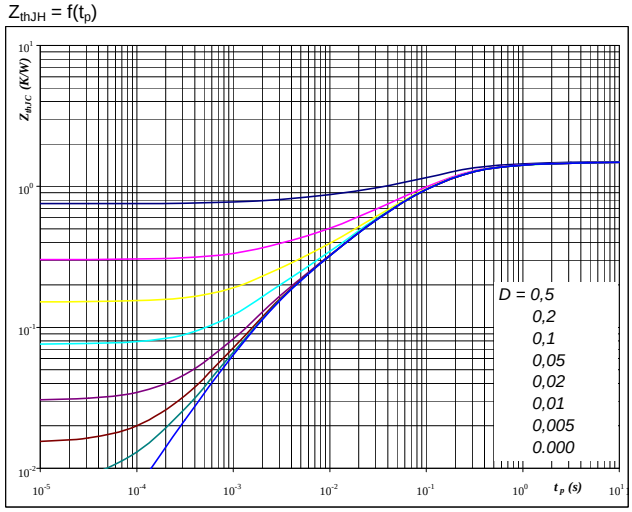


t_p = 250 µs

Figure 2 D7,D8,D9,D10,D11,D12 diode

Diode transient thermal impedance as a function of pulse width

$Z_{thJH} = f(t_p)$



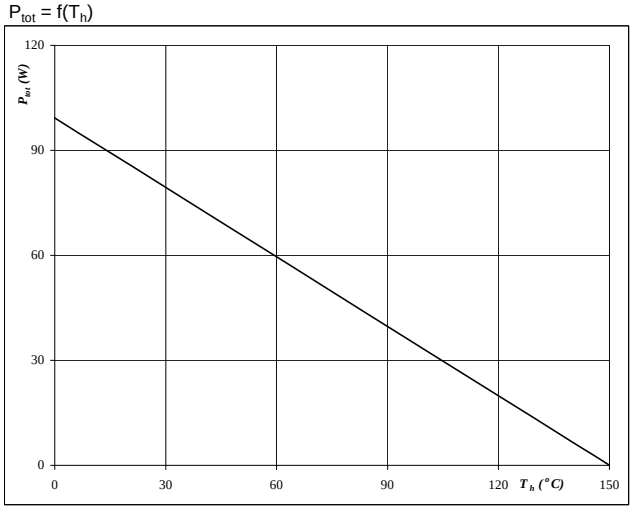
D = t_p / T

R_{thJH} = 1,5 K/W

Figure 3 D7,D8,D9,D10,D11,D12 diode

Power dissipation as a function of heatsink temperature

$P_{tot} = f(T_h)$

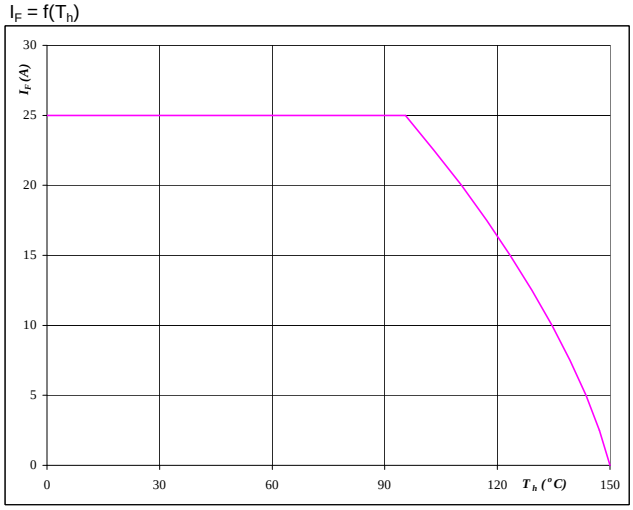


T_j = 150 ºC

Figure 4 D7,D8,D9,D10,D11,D12 diode

Forward current as a function of heatsink temperature

$I_F = f(T_h)$



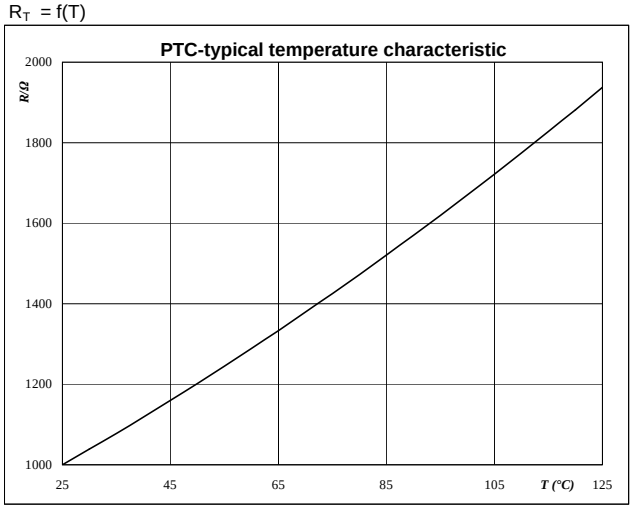
T_j = 150 ºC

Thermistor

Figure 1 Thermistor

Typical PTC characteristic
as a function of temperature

$R_T = f(T)$



Thermistor

Equation of PTC resistance temperature dependency

$R(T) = 1000\ \Omega[1+ A*(T-25℃) +B*(T-25℃)^2]$ [Ω]

Switching Definitions Output Inverter

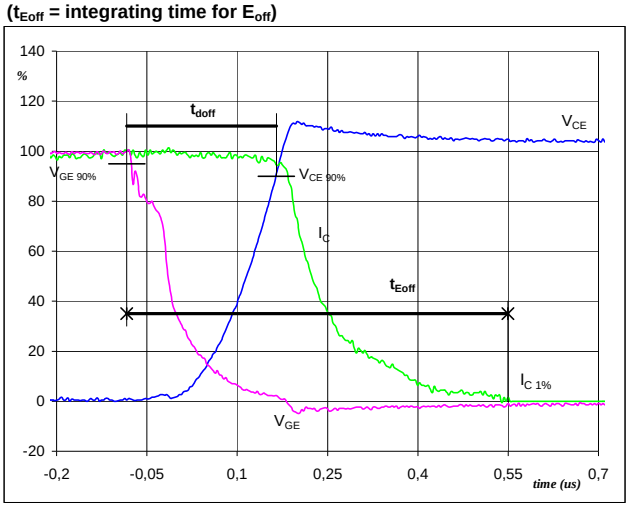
General conditions

T_j	=	150 ℃
R_{gon}	=	32 Ω
R_{goff}	=	32 Ω

Figure 1 Output inverter IGBT

Turn-off Switching Waveforms & definition of t_{doff}, t_{Eoff}

(t_{Eoff} = integrating time for E_{off})

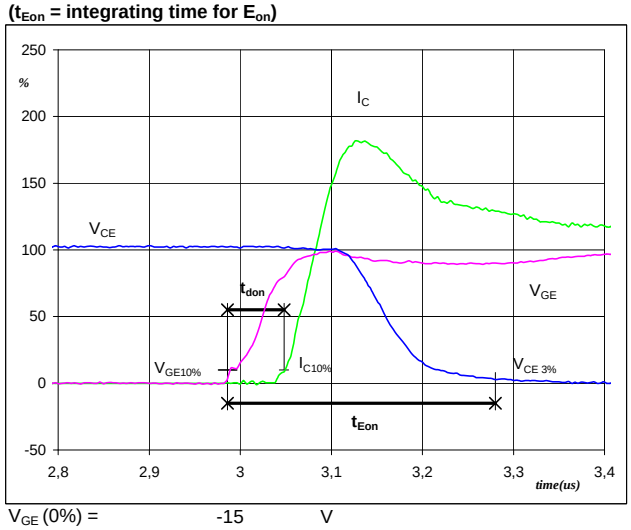


V_{GE} (0%) =	-15	V
V_{GE} (100%) =	15	V
V_C (100%) =	600	V
I_C (100%) =	8	A
t_{doff} =	0,24	µs
t_{Eoff} =	0,63	µs

Figure 2 Output inverter IGBT

Turn-on Switching Waveforms & definition of tdon, t_{Eon}

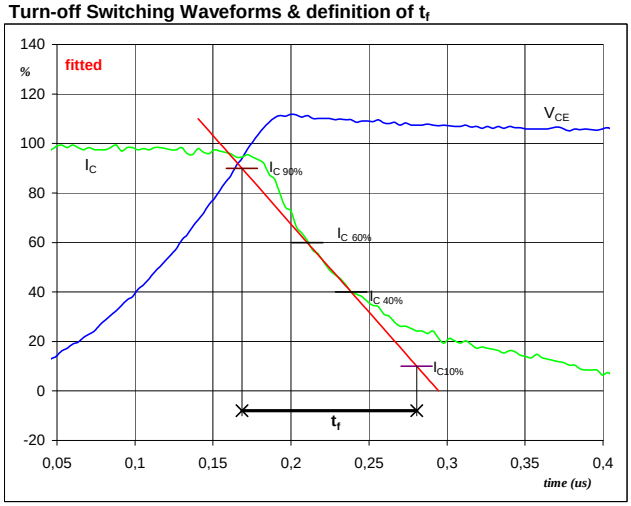
(t_{Eon} = integrating time for E_{on})



V_{GE} (0%) =	-15	V
V_{GE} (100%) =	15	V
V_C (100%) =	600	V
I_C (100%) =	8	A
t_{don} =	0,06	µs
t_{Eon} =	0,29	µs

Figure 3 Output inverter IGBT

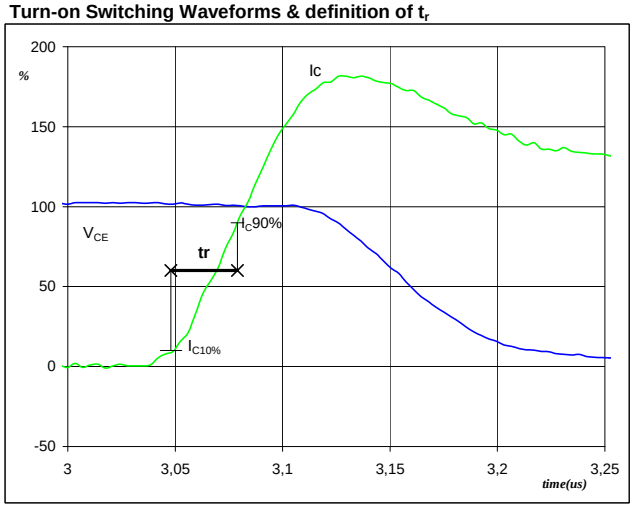
Turn-off Switching Waveforms & definition of t_f



V_C (100%) =	600	V
I_C (100%) =	8	A
t_f =	0,12	µs

Figure 4 Output inverter IGBT

Turn-on Switching Waveforms & definition of t_r

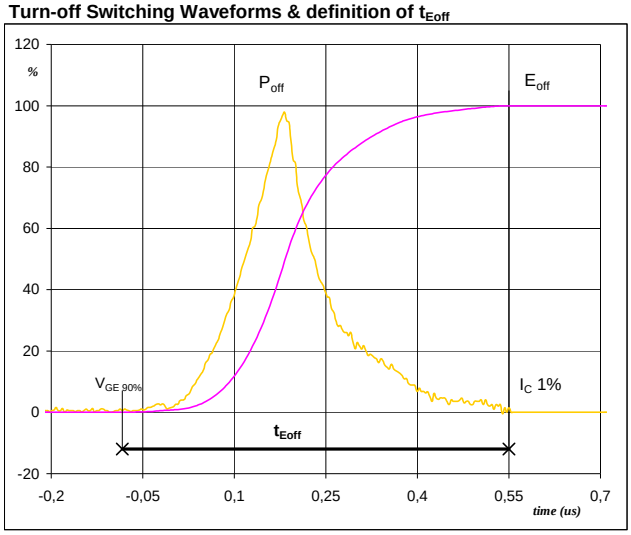


V_C (100%) =	600	V
I_C (100%) =	8	A
t_r =	0,03	µs

Switching Definitions Output Inverter

Figure 5 Output inverter IGBT

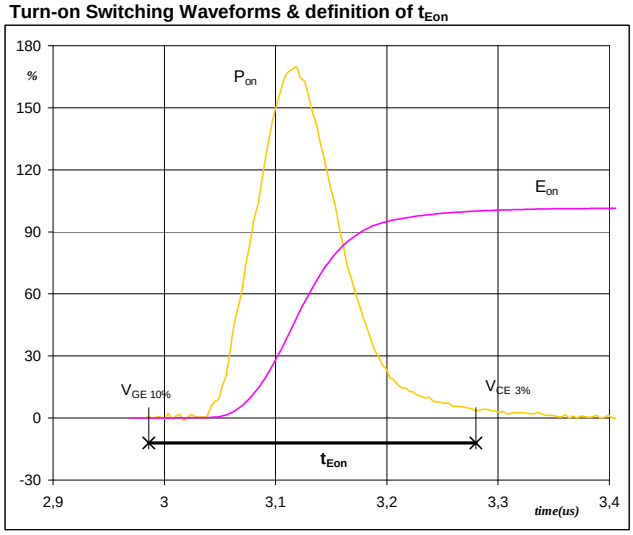
Turn-off Switching Waveforms & definition of t_{Eoff}



P_{off} (100%) =	4,83	kW
E_{off} (100%) =	0,74	mJ
t_{Eoff} =	0,63	µs

Figure 6 Output inverter IGBT

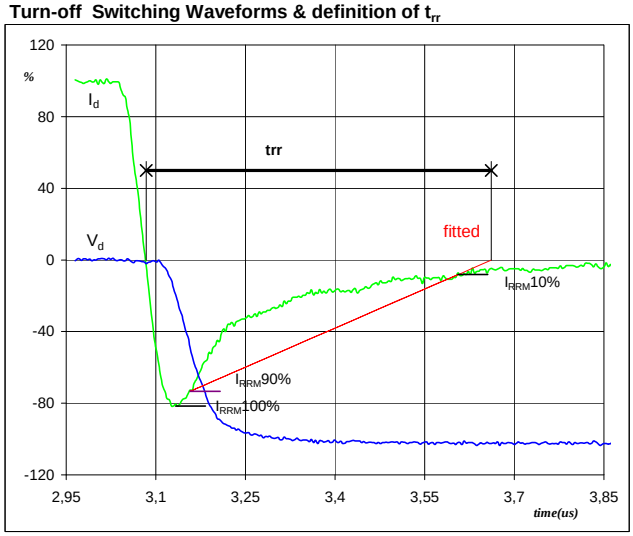
Turn-on Switching Waveforms & definition of t_{Eon}



P_{on} (100%) =	4,83	kW
E_{on} (100%) =	0,75	mJ
t_{Eon} =	0,29	µs

Figure 7 Output inverter FWD

Turn-off Switching Waveforms & definition of t_{rr}



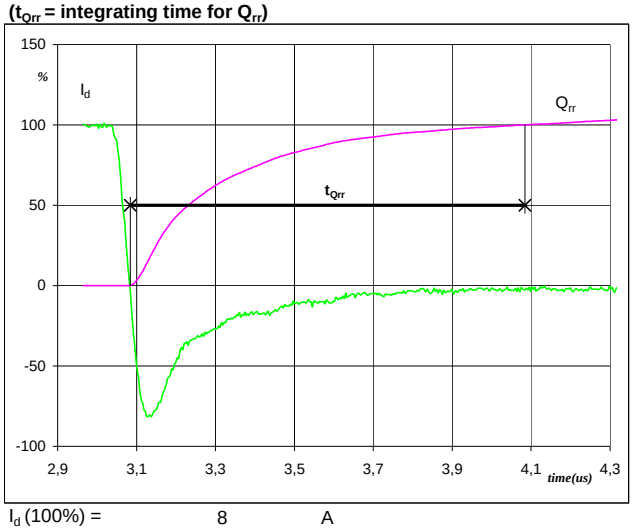
V_d (100%) =	600	V
I_d (100%) =	8	A
I_{RRM} (100%) =	-7	A
t_{rr} =	0,48	µs

Switching Definitions Output Inverter

Figure 8 Output inverter FWD

Turn-on Switching Waveforms & definition of t_{Qrr}

(t_{Qrr} = integrating time for Q_{rr})

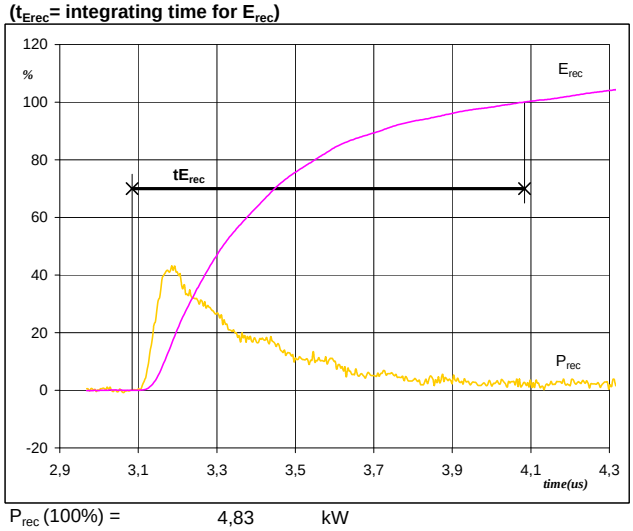


I_d (100%) =	8	A
Q_{rr} (100%) =	1,31	µC
t_{Qrr} =	1,00	µs

Figure 9 Output inverter FWD

Turn-on Switching Waveforms & definition of t_{Erec}

(t_{Erec}= integrating time for E_{rec})



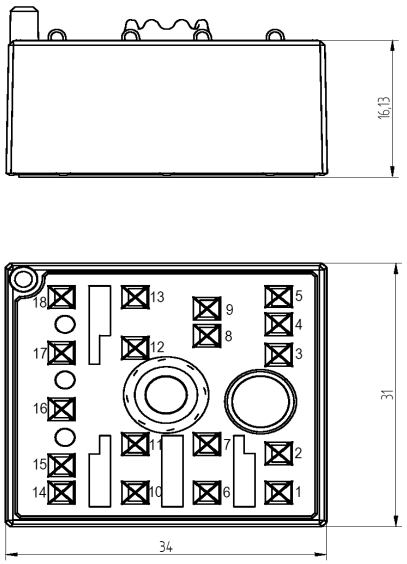
P_{rec} (100%) =	4,83	kW
E_{rec} (100%) =	0,56	mJ
t_{Erec} =	1,00	µs

Ordering Code and Marking - Outline - Pinout

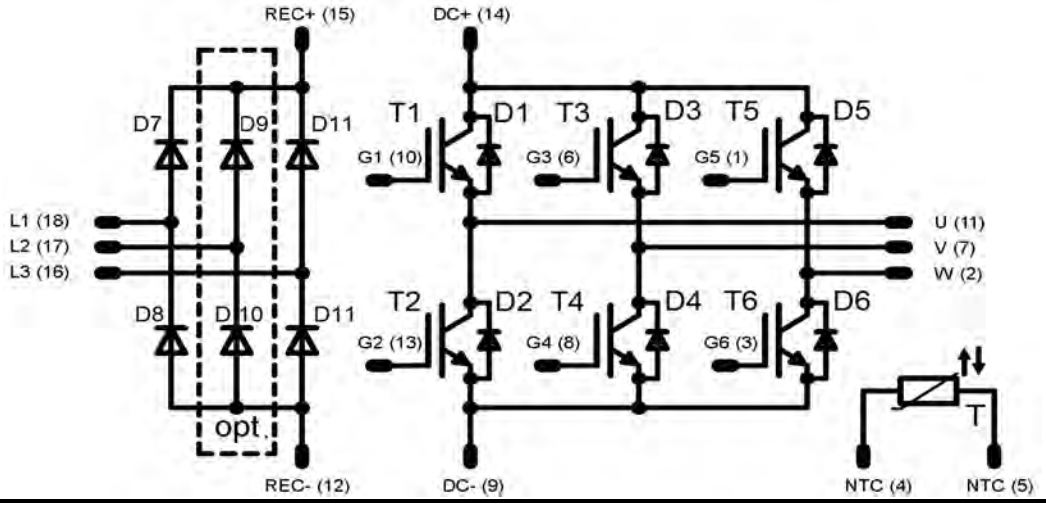
Ordering Code & Marking

Version	Ordering Code	in DataMatrix as	in packaging barcode as
with 3-leg rectifier, std lid (black V23990-K02-T-PM)	80-M012PNB008SC-K619C41-/0A/	K619C41	K619C41
with 3-leg rectifier, std lid (black V23990-K02-T-PM) and P12	80-M012PNB008SC-K619C41-/1A/	K619C41	K619C41
with 3-leg rectifier, thin lid (white V23990-K03-T-PM)	80-M012PNB008SC-K619C41-/0B/	K619C41	K619C41
with 3-leg rectifier, thin lid (white V23990-K03-T-PM) and P12	80-M012PNB008SC-K619C41-/1B/	K619C41	K619C41

Outline



Pinout



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