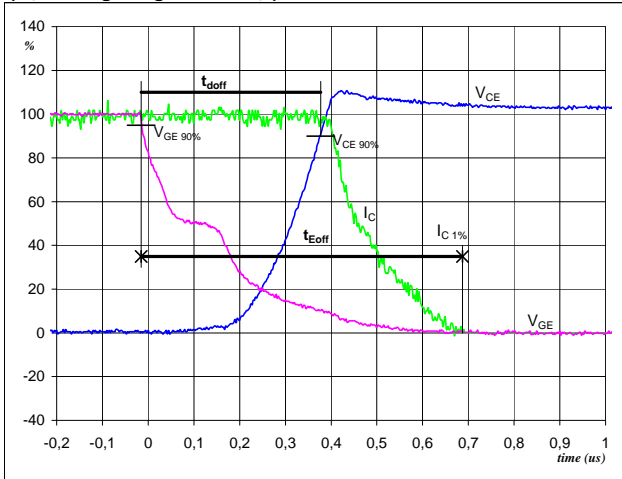


Switching Definitions Output Inverter

General conditions	
T_j	= 125 °C
R_{gon}	= 16 Ω
R_{goff}	= 16 Ω

Figure 1 Output inverter IGBT

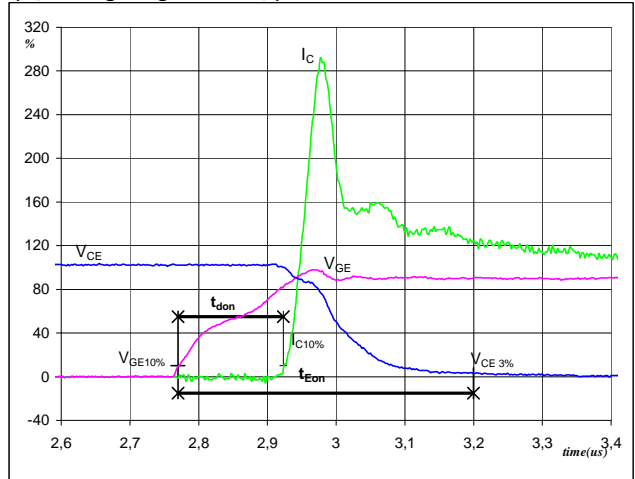
Turn-off Switching Waveforms & definition of t_{doff} , t_{Eoff}
(t_{Eoff} = integrating time for E_{off})



$V_{GE}(0\%)$	=	-15	V
$V_{GE}(100\%)$	=	15	V
$V_C(100\%)$	=	600	V
$I_C(100\%)$	=	25	A
t_{doff}	=	0,39	μ s
t_{Eoff}	=	0,70	μ s

Figure 2 Output inverter IGBT

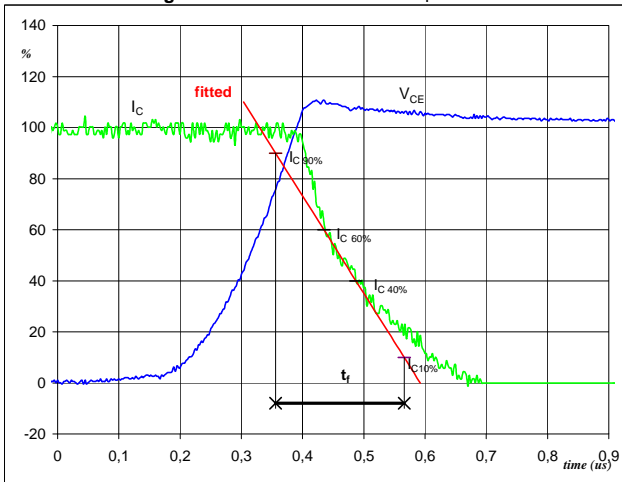
Turn-on Switching Waveforms & definition of t_{don} , t_{Eon}
(t_{Eon} = integrating time for E_{on})



$V_{GE}(0\%)$	=	-15	V
$V_{GE}(100\%)$	=	15	V
$V_C(100\%)$	=	600	V
$I_C(100\%)$	=	25	A
t_{don}	=	0,15	μ s
t_{Eon}	=	0,43	μ s

Figure 3 Output inverter IGBT

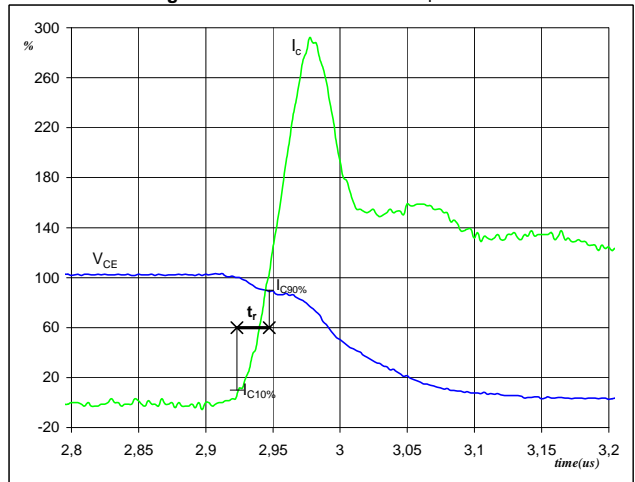
Turn-off Switching Waveforms & definition of t_f



$V_C(100\%)$	=	600	V
$I_C(100\%)$	=	25	A
t_f	=	0,20	μ s

Figure 4 Output inverter IGBT

Turn-on Switching Waveforms & definition of t_r

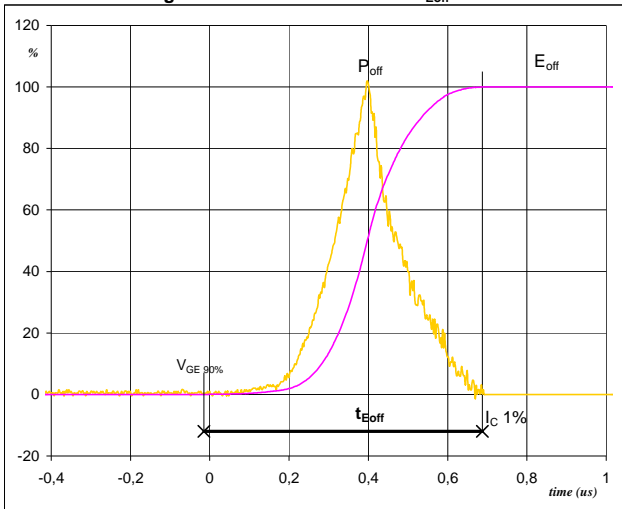


$V_C(100\%)$	=	600	V
$I_C(100\%)$	=	25	A
t_r	=	0,02	μ s

Switching Definitions Output Inverter

Figure 5 Output inverter IGBT

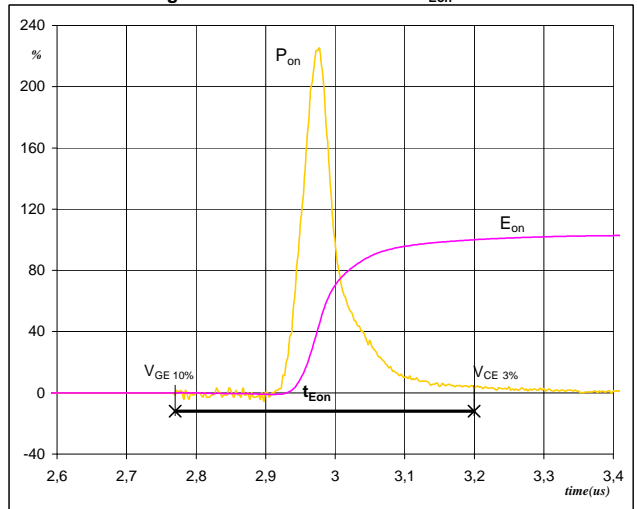
Turn-off Switching Waveforms & definition of t_{Eoff}



$P_{off} (100\%) = 14,93 \text{ kW}$
 $E_{off} (100\%) = 2,85 \text{ mJ}$
 $t_{Eoff} = 0,70 \text{ }\mu\text{s}$

Figure 6 Output inverter IGBT

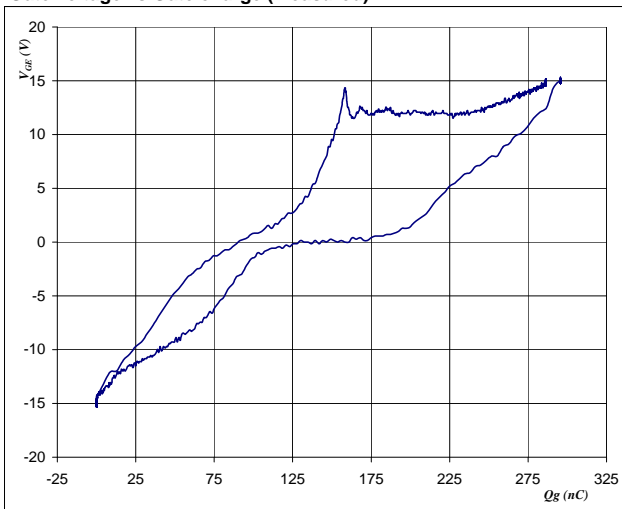
Turn-on Switching Waveforms & definition of t_{Eon}



$P_{on} (100\%) = 14,93 \text{ kW}$
 $E_{on} (100\%) = 2,12 \text{ mJ}$
 $t_{Eon} = 0,43 \text{ }\mu\text{s}$

Figure 7 Output inverter FWD

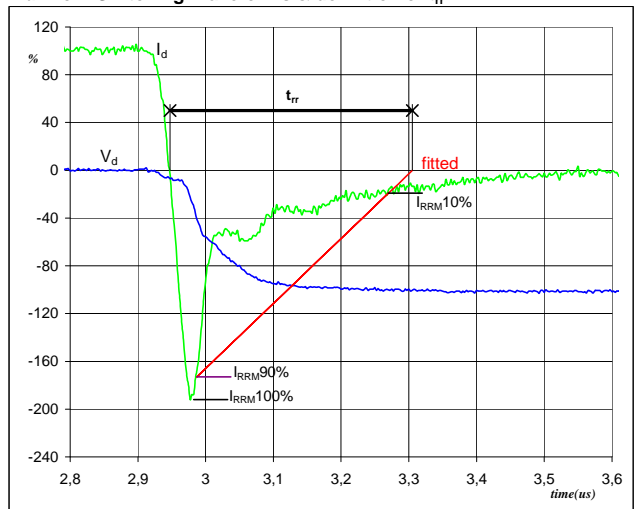
Gate voltage vs Gate charge (measured)



$V_{GEoff} = -15 \text{ V}$
 $V_{GEon} = 15 \text{ V}$
 $V_C (100\%) = 600 \text{ V}$
 $I_C (100\%) = 25 \text{ A}$
 $Q_g = 295,73 \text{ nC}$

Figure 8 Output inverter IGBT

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

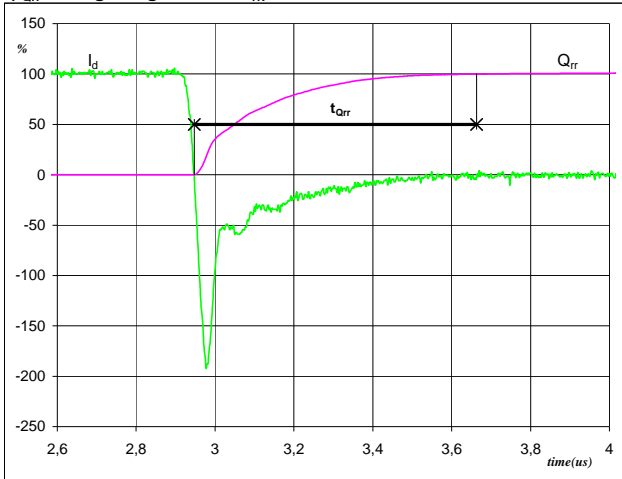


$V_d (100\%) = 600 \text{ V}$
 $I_d (100\%) = 25 \text{ A}$
 $I_{RRM} (100\%) = 47 \text{ A}$
 $t_{rr} = 0,27 \text{ }\mu\text{s}$

Switching Definitions Output Inverter

Figure 9 Output inverter FWD

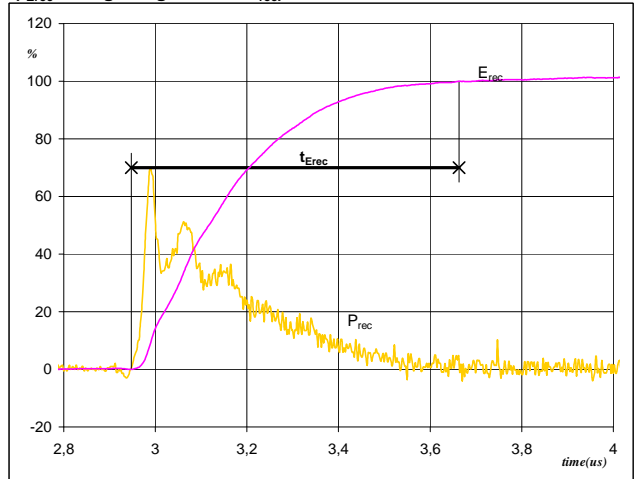
Turn-on Switching Waveforms & definition of t_{Qrr}
(t_{Qrr} = integrating time for Q_{rr})



I_d (100%) =	25	A
Q_{rr} (100%) =	4,63	μC
t_{Qrr} =	0,72	μs

Figure 10 Output inverter FWD

Turn-on Switching Waveforms & definition of t_{Erec}
(t_{Erec} = integrating time for E_{rec})



P_{rec} (100%) =	14,93	kW
E_{rec} (100%) =	1,86	mJ
t_{Erec} =	0,72	μs