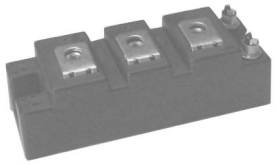
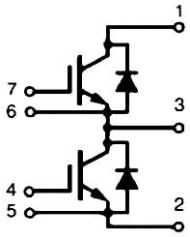
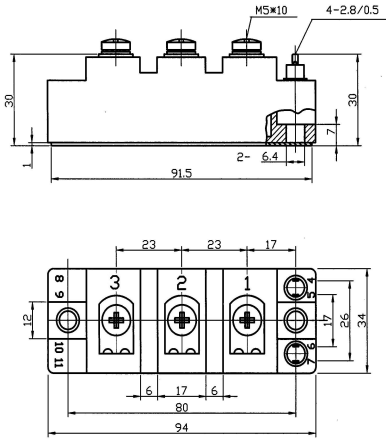
SII100N06

NPT IGBT Modules





Dimensions in mm (1mm = 0.0394")



Absolute Maximum Ratings T_C = 25°C, unless otherwise specified

Symbol	Conditions	Values	Units
IGBT Wechselrichter/ IGBT Inverter			
V_{CES}		600	V
I_C	T_C= 25(70)°C	130(100)	A
I_{CRM}	T_C= 70°C, t_P =1ms	200	A
P_{tot}	T_C= 25°C, T_{vj}= 150°C	445	W
V_{GES}		±20	V
Diode Wechselrichter/ Diode Inverter			
I_F		100	A
I_{FRM}	t_P =1ms	200	A
I^2t	V_R=0V, t_P =10ms; T_{vj}=125°C	1.25	A^2s
Module Isolation/ Module Isolation			
V_{ISOL}	RMS, f=50Hz, t=1min, NTC connect to Baseplate	2500	V

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Characteristics $T_C = 25^oC$, unless otherwise specified

Symbol	Conditions	min.	typ.	max.	Units
IGBT Wechselrichter/ IGBT Inverter					
V_{GEth}	$V_{GE} = V_{CE}$, I_C =1.5mA	4.5	5.5	6.5	V
I_{CES}	V_{GE} = 0; V_{CE} = 600V, T_j = 25(125)^{o}C		1(1000)	500	uA
I_{GES}	V_{CE}=0; V_{GE}=20V			400	nA
$V_{CE(sat)}$	I_C =100A; V_{GE} = 15V; T_j = 25(125)^{o}C		1.95(2.2)	2.45(-)	V
C_{ies}	under following conditions		4.3		nF
C_{res}	V_{GE} = 0, V_{CE} = 25V, f = 1MHz		0.4		
L_{CE}			40		nH
I_{sc}	$t_P \leqslant$ 10uS, $V_{GE} \leqslant$ 15V, Tvj = 125 ^{o}C , Vcc = 360V		450		A
	under following conditions:				
$t_{d(on)}$	V_{CC} = 300V, I_C = 100A		25(26)		ns
t_r	R_{Gon} = R_{Goff} =2.2Ω, , T_j = 25(125)^{o}C		10(11)		ns
$t_{d(off)}$	V_{GE} = ± 15V		130(150)		ns
t_f			20(30)		ns
E_{on}(E_{off})	T_j = 25(125)^{o}C, L_S = 15nH		1.0(2.9)		mJ
$R_{CC'+EE'}$			1.0		mΩ
R_{thJC}			0.28		K/W
Diode Wechselrichter/ Diode Inverter					
V_F	under following condition				
	I_F = 100A; V_{GE} = 0V; T_j = 25(125)^{o}C		1.25(1.2)	1.6(-)	V
I_{RM}	I_F = 100A; T_j = 25(125)^{o}C		150(180)		A
Q_r	-di/dt = 4400A/us		7.7(13)		uC
E_{rec}	V_{GE} = -10V, V_R=300V		-(3.2)		mJ
R_{thJC}				0.5	K/W
R_{thCK}			0.03		
T_{VJ}			-40...+125		^{o}C
T_{VJM}			150		
T_{stg}			-40...+125		
Mechanical Data					
M_s	to heatsink M6	3		5	Nm
M_t	to terminals M5	2.5		5	Nm
w				160	g

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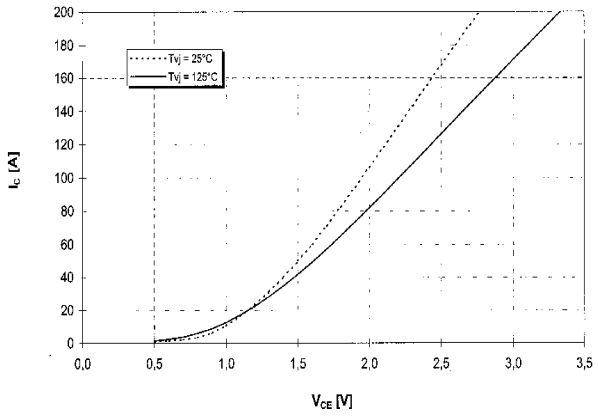
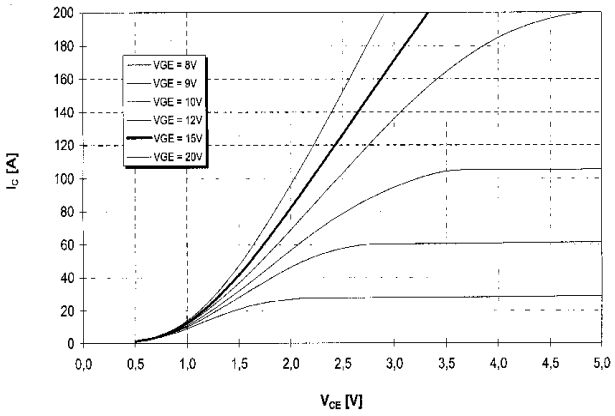
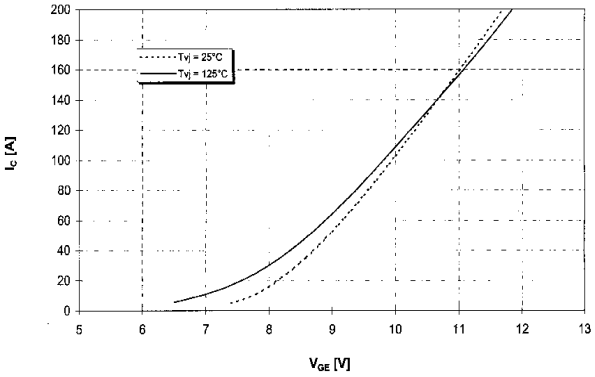
Ausgangskennlinie (typisch) $I_C = f(V_{CE})$
Output characteristic (typical) $V_{GE} = 15V$



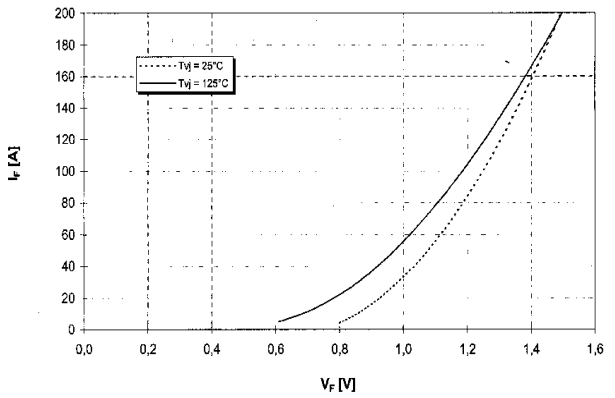
Ausgangskennlinienfeld (typisch) $I_C = f(V_{CE})$
Output characteristic (typical) $T_{vj} = 125°C$



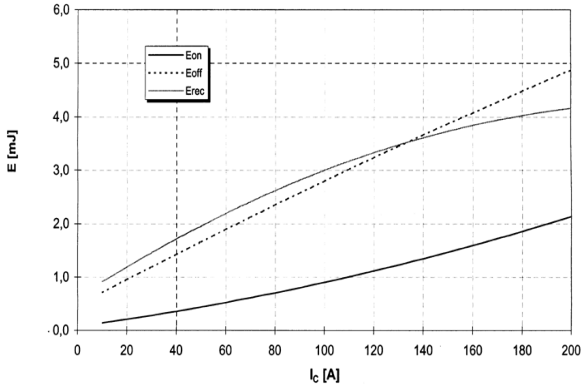
Übertragungscharakteristik (typisch) $I_C = f(V_{GE})$
Transfer characteristic (typical) $V_{CE} = 20V$



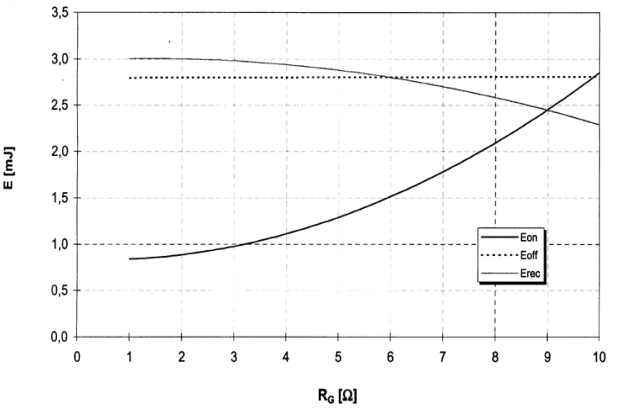
Durchlaßkennlinie der Inversdiode (typisch) $I_F = f(V_F)$
Forward characteristic of inverse diode (typical)



Schaltverluste (typisch) $E_{on} = f(I_C), E_{off} = f(I_C), E_{rec} = f(I_C)$
Switching losses (typical) $R_{G,on} = 2,2\Omega, R_{G,off} = 2,2\Omega, V_{CC} = 300V, T_{vj} = 125°C$



Schaltverluste (typisch) $E_{on} = f(R_G), E_{off} = f(R_G), E_{rec} = f(R_G)$
Switching losses (typical) $I_C = 100A, V_{CC} = 300V, T_{vj} = 125°C$



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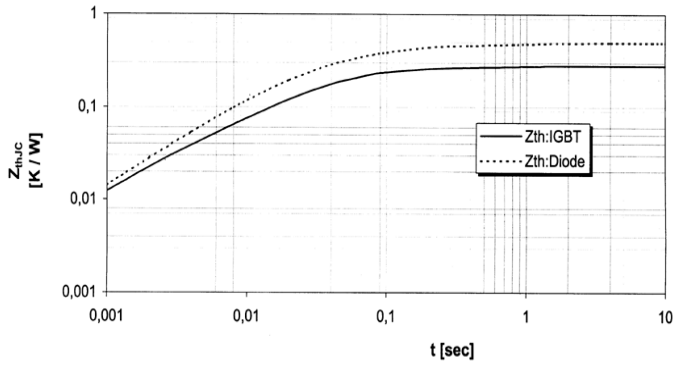
Transienter Wärmewiderstand $Z_{thJC} = f(t)$
Transient thermal impedance



i	1	2	3	4
r_i [K/kW] : IGBT	11,9	146,7	98,7	22,7
τ_i [sec] : IGBT	0,0018	0,0240	0,0651	0,6626
r_i [K/kW] : Diode	176,2	169,0	106,1	48,7
τ_i [sec] : Diode	0,0487	0,0169	0,1069	0,9115

Sicherer Arbeitsbereich (RBSOA)
Reverse bias safe operation area (RBSOA) V_{GE}= +15V, $R_{G,off}$= 2,2Ω, T_{vj}= 125°C