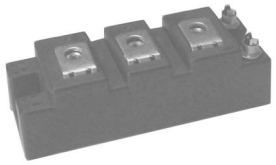
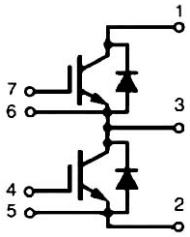
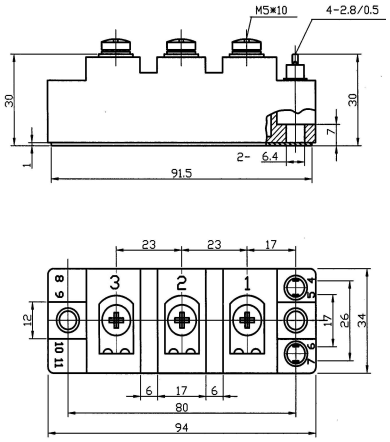
SII50N06

NPT IGBT Modules





Dimensions in mm (1mm = 0.0394")



Absolute Maximum Ratings $T_C = 25^oC$, unless otherwise specified

Symbol	Conditions	Values	Units
IGBT Wechselrichter/ IGBT Inverter			
V_{CES}		600	V
I_C	T_C= 25(80)^{o}C, T_{vj}= 150^{o}C	75(50)	A
I_{CRM}	T_C= 80^{o}C, t_P =1ms	100	A
P_{tot}	T_C= 25^{o}C, T_{vj}= 150^{o}C	280	W
V_{GES}		±20	V
Diode Wechselrichter/ Diode Inverter			
V_{RRM}		600	V
I_F		50	A
I_{FRM}	t_P =1ms	100	A
I^2t	V_R=0V, t_P =10ms; T_{vj}=125^{o}C	450	A^2s
Module Isolation/ Module Isolation			
V_{ISOL}	RMS, f=50Hz, t=1min, NTC connect to Baseplate	2500	V

SII50N06

NPT IGBT Modules

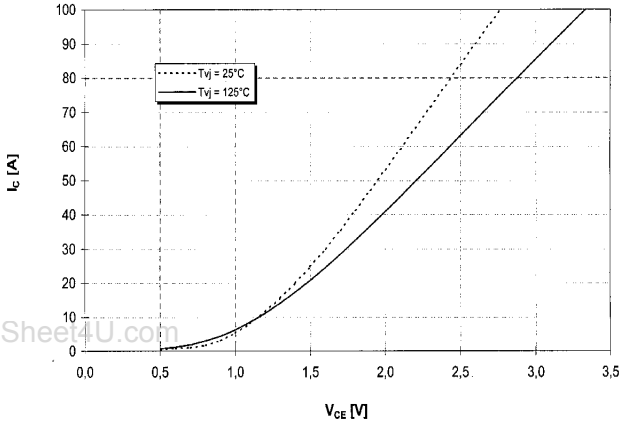
Characteristics $T_C = 25^oC$, unless otherwise specified

Symbol	Conditions	min.	typ.	max.	Units
IGBT Wechselrichter/ IGBT Inverter					
V_{GEth}	$V_{GE} = V_{CE}$, I_C =1.0mA	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 =300A; V_{GE} = 15V; T_j = 25(125)^{o}C		2.1(2.4)	2.6(2.9)	V
C_{ies}	under following conditions		2.2		nF
C_{res}	V_{GE} = 0, V_{CE} = 25V, f = 1MHz		0.2		
L_{CE}			40		nH
I_{sc}	$t_P \leqslant$ 10uS, $V_{GE} \leqslant$ 15V, Tvj = 125 ^{o}C , Vcc = 360V		225		A
	under following conditions:				
$t_{d(on)}$	V_{CC} = 300V, I_C = 50A		40(42)		ns
t_r	R_{Gon} = R_{Goff} =2.7Ω, , T_j = 25(125)^{o}C		9(10)		ns
$t_{d(off)}$	V_{GE} = ± 15V		120(130)		ns
t_f			12(21)		ns
E_{on}(E_{off})	T_j = 25(125)^{o}C, L_S = 35nH		0.5(1.0)		mJ
$R_{CC'+EE'}$			1.2		mΩ
R_{thJC}			0.44		K/W
Diode Wechselrichter/ Diode Inverter					
V_F	under following condition I_F = 50A; V_{GE} = 0V; T_j = 25(125)^{o}C		1.25(1.2)	1.6(-)	V
I_{RM}	I_F = 50A; T_j = 25(125)^{o}C		88(92)		A
Q_r	-di/dt = 2900A/us		3.4(5.6)		uC
E_{rec}	V_{GE} = -10V, V_R=300V		-(1.5)		mJ
R_{thJC}				0.8	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

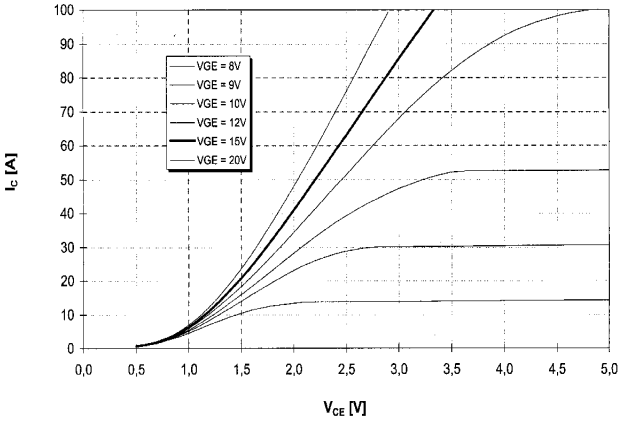
SII50N06

NPT IGBT Modules

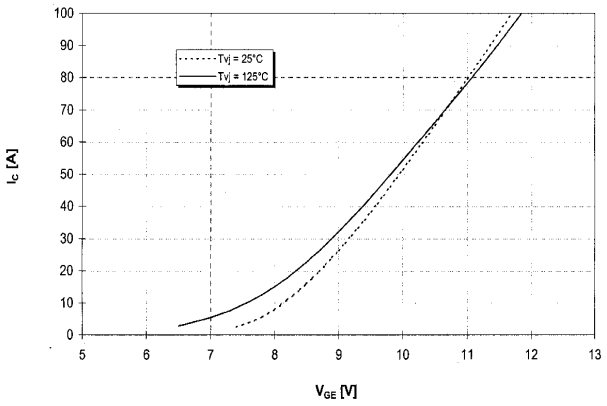
Ausgangskennlinie (typisch) $I_C = f(V_{CE})$
Output characteristic (typical) $V_{GE} = 15V$



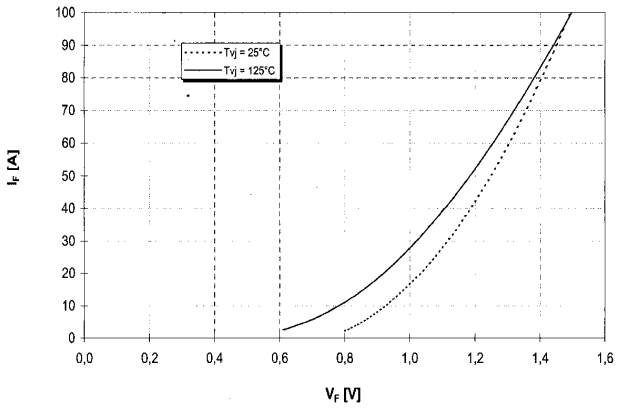
Ausgangskennlinienfeld (typisch) $I_C = f(V_{CE})$
Output characteristic (typical) $T_{vj} = 125°C$



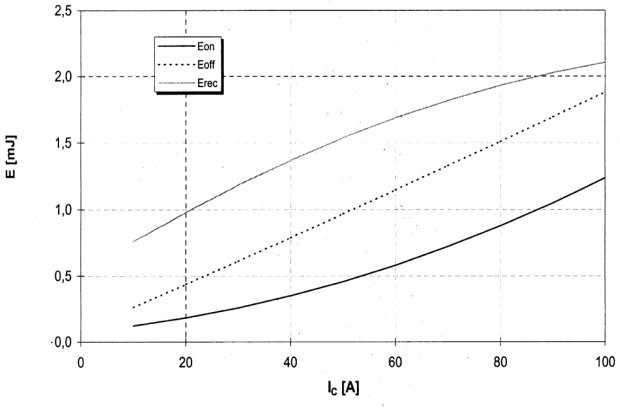
Übertragungscharakteristik (typisch) $I_C = f(V_{GE})$
Transfer characteristic (typical) $V_{CE} = 20V$



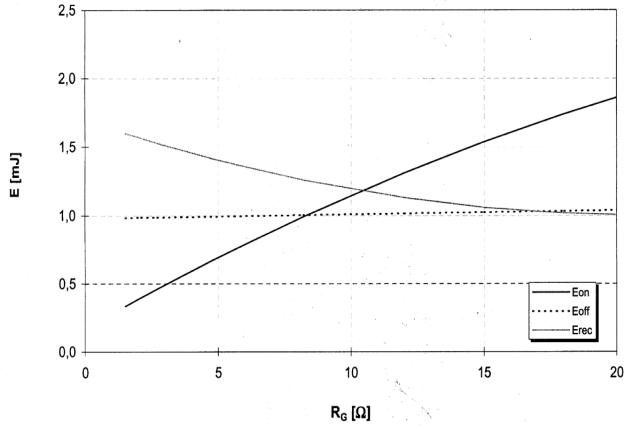
Durchlaßkennlinie der Inversdiode (typisch) $I_F = f(V_F)$
Forward characteristic of inverse diode (typical)



Schaltverluste (typisch) $E_{on} = f(I_C)$, $E_{off} = f(I_C)$, $E_{rec} = f(I_C)$
Switching losses (typical) $R_{G,on} = 2,7\Omega$, $R_{G,off} = 2,7\Omega$, $V_{CC} = 300V$, $T_{vj} = 125°C$



Schaltverluste (typisch) $E_{on} = f(R_G)$, $E_{off} = f(R_G)$, $E_{rec} = f(R_G)$
Switching losses (typical) $I_C = 50A$, $V_{CC} = 300V$, $T_{vj} = 125°C$

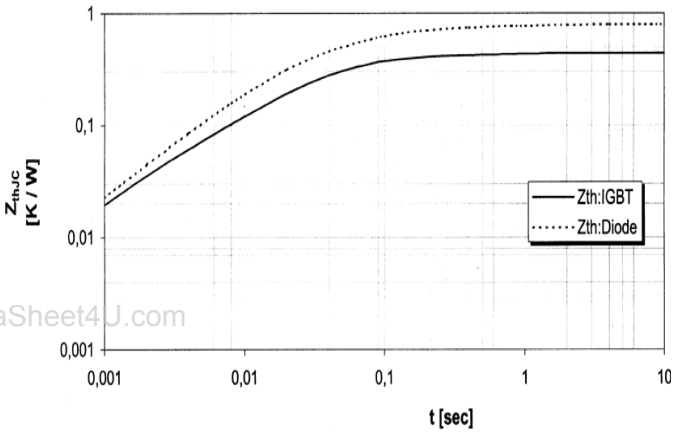


Sirectifier®

SII50N06

NPT IGBT Modules

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



i	1	2	3	4
r_i [K/kW] : IGBT	18,6	230,6	155,1	35,7
τ_i [sec] : IGBT	0,0018	0,0240	0,0651	0,6626
r_i [K/kW] : Diode	281,9	270,4	169,8	77,9
τ_i [sec] : Diode	0,0487	0,0169	0,1069	0,9115

Sicherer Arbeitsbereich (RBSOA)
Reverse bias safe operation area (RBSOA) V_{GE}= +15V, $R_{G,off}$= 2,7Ω, T_{vj}= 125°C