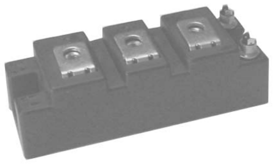
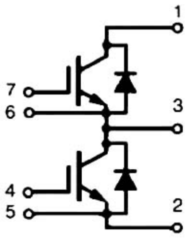
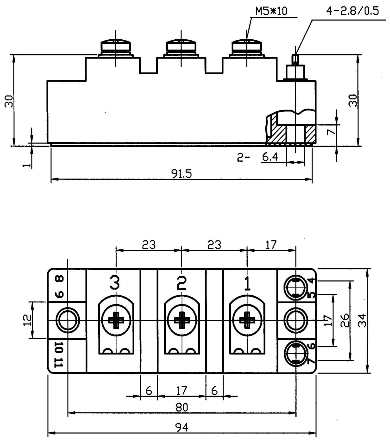
SII75N06

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(75)^{o}C	100(75)	A
I_{CRM}	T_C= 75^{o}C, t_P =1ms	150	A
P_{tot}	T_C= 25^{o}C, T_{vj}= 150^{o}C	355	W
V_{GES}		±20	V
Diode Wechselrichter/ Diode Inverter			
I_F		75	A
I_{FRM}	t_P =1ms	150	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

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Characteristics $T_C = 25^{o}$C, 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 =75A; V_{GE} = 15V; $T_j = 25(125)^{o}$C		1.95(2.2)	2.45(-)	V
C_{ies} C_{res}	under following conditions V_{GE} = 0, V_{CE} = 25V, f = 1MHz		3.3 0.3		nF
L_{CE}			40		nH
I_{sc}	$t_P \leqslant$ 10uS, $V_{GE} \leqslant$ 15V, Tvj = 125 ^{o}C , Vcc = 360V		340		A
	under following conditions:				
$t_{d(on)}$	V_{CC} = 300V, I_C = 75A		63(65)		ns
t_r	$R_{Gon} = R_{Goff}$ =3.0Ω, , $T_j = 25(125)^{o}$C		22(25)		ns
$t_{d(off)}$	V_{GE} = ± 15V		155(170)		ns
t_f			20(35)		ns
$E_{on}(E_{off})$	$T_j = 25(125)^{o}$C, L_S = 30nH		0.7(2.4)		mJ
$R_{CC'+EE'}$			1.2		mΩ
R_{thJC}			0.35		K/W
Diode Wechselrichter/ Diode Inverter					
V_F	under following condition I_F = 75A; V_{GE} = 0V; $T_j = 25(125)^{o}$C		1.25(1.2)	1.6(-)	V
I_{RM}	I_F = 75A; $T_j = 25(125)^{o}$C		95(115)		A
Q_r	-di/dt = 3000A/us		5.1(7.9)		uC
E_{rec}	V_{GE} = -10V, V_R=300V		-(2.3)		mJ
R_{thJC} R_{thCK}			 0.03	0.66 	K/W
T_{VJ} T_{VJM} T_{stg}			-40...+125 150 -40...+125		^{o}C
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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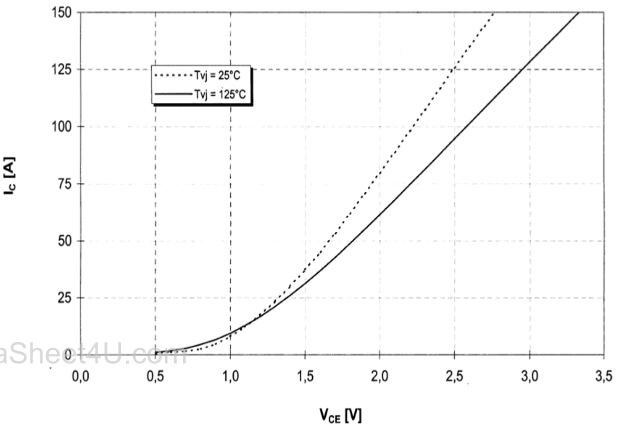
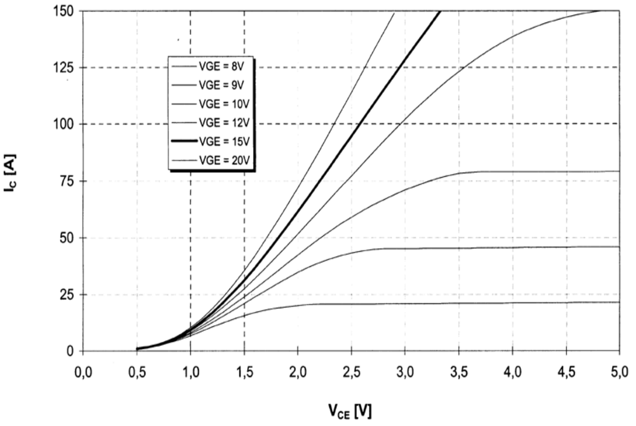
Ausgangskennlinie (typisch) $I_C = f(V_{CE})$

Output characteristic (typical) $V_{GE} = 15V$



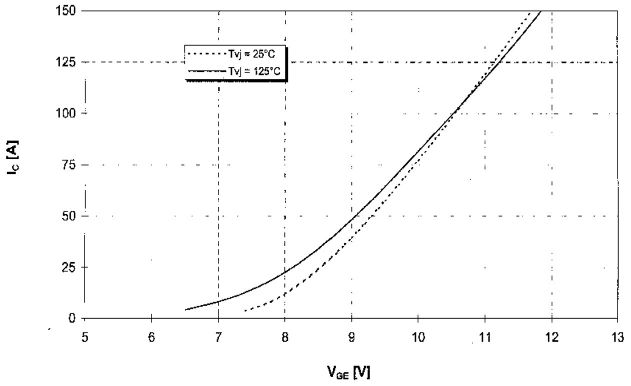
Ausgangskennlinienfeld (typisch) $I_C = f(V_{CE})$

Output characteristic (typical) $T_{vj} = 125°C$



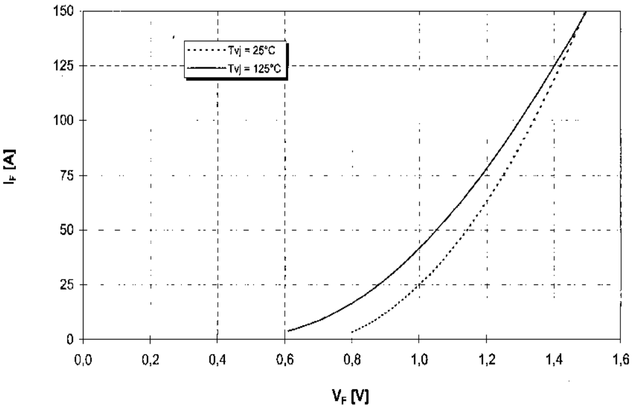
Übertragungscharakteristik (typisch) $I_C = f(V_{GE})$

Transfer characteristic (typical) $V_{CE} = 20V$



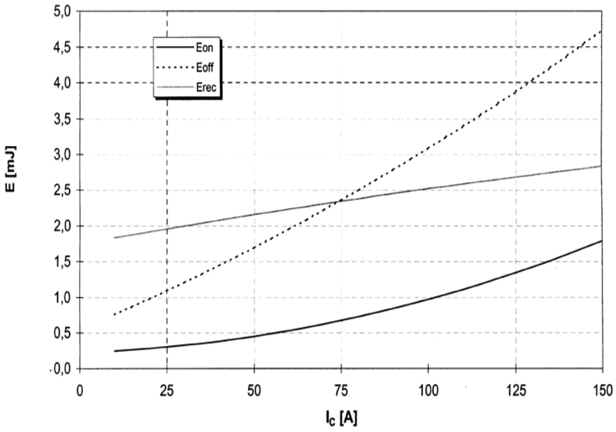
Durchlaßkennlinie der Inversdiode (typisch) $I_F = f(V_F)$

Forward characteristic of inverse diode (typical)



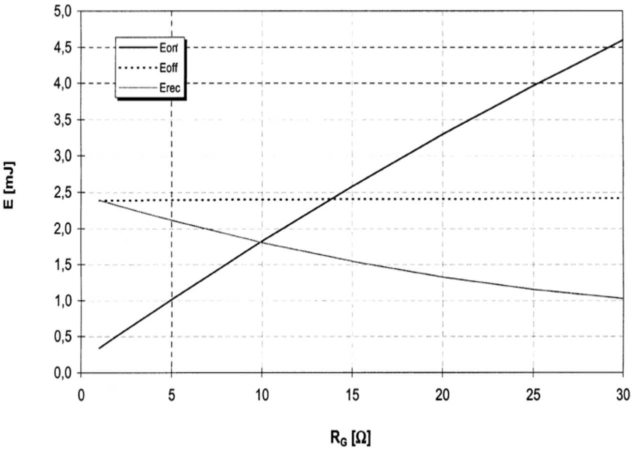
Schaltverluste (typisch) $E_{on} = f(I_C)$, $E_{off} = f(I_C)$, $E_{rec} = f(I_C)$

Switching losses (typical) $R_{G,on} = 3{,}0\Omega$, $R_{G,off} = 3{,}0\Omega$, $V_{CC} = 300V$, $T_{vj} = 125°C$



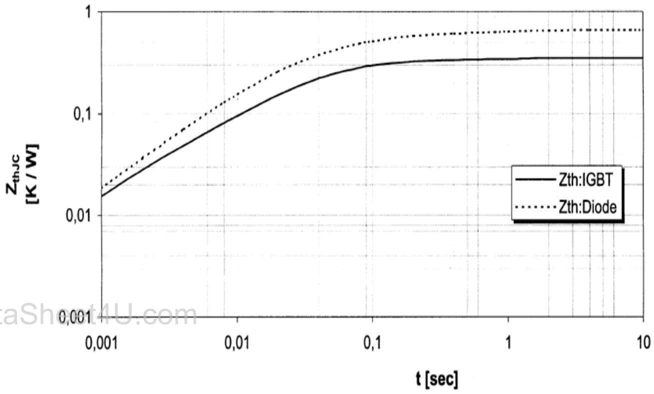
Schaltverluste (typisch) $E_{on} = f(R_G)$, $E_{off} = f(R_G)$, $E_{rec} = f(R_G)$

Switching losses (typical) $I_C = 75A$, $V_{CC} = 300V$, $T_{vj} = 125°C$



Transienter Wärmewiderstand **$Z_{thJC} = f(t)$**

Transient thermal impedance



i	1	2	3	4
r_i [K/kW] : IGBT	14,8	183,4	123,4	28,4
τ_i [sec] : IGBT	0,0018	0,0240	0,0651	0,6626
r_i [K/kW] : Diode	232,6	223,1	140,1	64,2
τ_i [sec] : Diode	0,0487	0,0169	0,1069	0,9115

Sicherer Arbeitsbereich (RBSOA)

Reverse bias safe operation area (RBSOA) V_{GE}= +15V, $R_{G,off}$= 3,0Ω, T_{vj}= 125°C