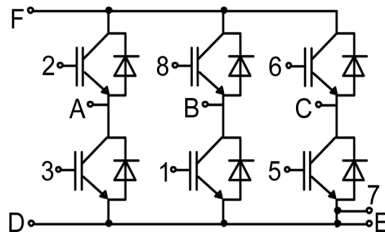
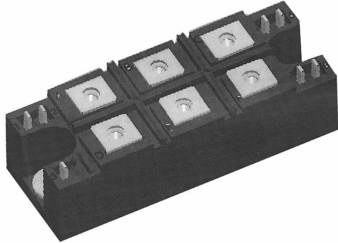
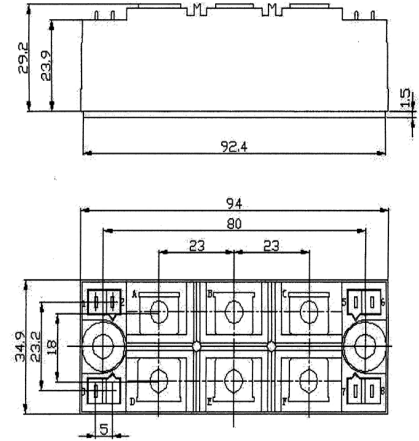


# 6SI40N12

## NPT IGBT Modules



Dimensions in mm (1mm = 0.0394")



### Absolute Maximum Ratings

$T_c = 25^{\circ}\text{C}$ , unless otherwise specified

Symbol	Conditions	Values	Units
<b>IGBT Wechselrichter/ IGBT Inverter</b>			
$V_{CES}$		1200	V
$I_C$	$T_c = 25(80)^{\circ}\text{C}$	55(40)	A
$I_{CRM}$	$T_c = 80^{\circ}\text{C}$ , $t_P = 1\text{ms}$	80	A
$P_{tot}$		200	W
$V_{GES}$		$\pm 20$	V
<b>Diode Wechselrichter/ Diode Inverter</b>			
$I_F$		40	A
$I_{FRM}$	$t_P = 1\text{ms}$	80	A
$I^2t$	$V_R = 0\text{V}$ , $t_P = 10\text{ms}$ ; $T_j = 150^{\circ}\text{C}$	320	$\text{A}^2\text{s}$
<b>IGBT Brems-Chopper/ IGBT Brake-Chopper</b>			
$V_{CES}$		1200	V
$I_C$	$T_c = 25(80)^{\circ}\text{C}$	25(15)	A
$I_{CRM}$	$T_c = 80^{\circ}\text{C}$ , $t_P = 1\text{ms}$	30	A
$P_{tot}$		100	W
$V_{GES}$		$\pm 20$	V
<b>Diode Brems-Chopper/ Diode Brake-Chopper</b>			
$I_F$		10	A
$I_{FRM}$	$t_P = 1\text{ms}$	20	A
<b>Module Isolation/ Module Isolation</b>			
$V_{ISOL}$	RMS, $f = 50\text{Hz}$ , $t = 1\text{min}$ , NTC connect to Baseplate	2500	V

# 6SI40N12

## NPT IGBT Modules

### Characteristics

$T_c = 25^\circ\text{C}$ , unless otherwise specified

Symbol	Conditions	min.	typ.	max.	Units
<b>IGBT Wechselrichter/ IGBT Inverter</b>					
$V_{GE(TO)}$	$V_{GE} = V_{CE}, I_c = 1.5\text{mA}$	5.0	5.8	6.5	V
$I_{CES}$	$V_{GE} = 0; V_{CE} = 1200\text{V}$			5	mA
$I_{GES}$	$V_{CE}=0; V_{GE}=20\text{V}$			400	nA
$r_{CE}$	$V_{GE} = 15\text{V}, T_j = 25(125)^\circ\text{C}$		14.6(20)	18.6(25.3)	$\text{m}\Omega$
$V_{CE(sat)}$	$I_c = 25\text{A}; V_{GE} = 15\text{V}; T_j = 25(125)^\circ\text{C}$		1.7(2.0)	2.15(-)	V
$C_{ies}$	under following conditions $V_{GE} = 0, V_{CE} = 25\text{V}, f = 1\text{MHz}$		1.8		nF
$L_{CE}$				60	nH
$R_{CC'+EE'}$			7.0		$\text{m}\Omega$
$t_{d(on)}$	under following conditions: $V_{CC} = 600\text{V}, I_c = I_{Nenn}$		85(90)		ns
$t_r$	$R_{Gon} = R_{Goff} = 27\Omega, T_j = 25(125)^\circ\text{C}$		30(45)		ns
$t_{d(off)}$	$V_{GE} = \pm 15\text{V}$		420(520)		ns
$t_f$			65(90)		ns
$E_{on}(E_{off})$	$T_j = 125^\circ\text{C}$		5.8(4.9)		mJ
<b>Diode Wechselrichter/ Diode Inverter</b>					
$V_F$	under following condition $I_F = 40\text{A}; V_{GE} = 0\text{V}; T_j = 25(125)^\circ\text{C}$		1.75(1.75)	2.3(-)	V
$I_{RM}$	$I_F = I_{Nenn}; T_j = 25(125)^\circ\text{C}$		45(46)		A
$Q_r$	$-di/dt = 1000\text{A/us}$		4.4(8.4)		$\mu\text{C}$
$E_{rec}$	$V_{GE} = -10\text{V}, V_R=600\text{V}$		1.55(3.1)		mJ
<b>IGBT Brems-Chopper/ IGBT Brake-Chopper</b>					
$V_{CE sat}$	under following conditions $I_c = 15\text{A}; V_{GE} = 15\text{V}; T_j = 25(125)^\circ\text{C}$		1.7(2.0)	2.15	V
$V_{GE(TO)}$	$V_{CE}=V_{GE}, I_c=0.5\text{mA}$	5.0	5.8	6.5	V
$C_{ies}$	$f=1\text{MHz}, V_{CE}=25\text{V}, V_{GE}=0\text{V}$		1.1		nF
$I_{CES}$	$V_{GE}=0\text{V}, V_{CE}=1200\text{V}$		5.0	500	mA
$I_{GES}$	$V_{CE}=0\text{V}, V_{GE}=20\text{V}$			400	nA
<b>Diode Brems-Chopper/ Diode Brake-Chopper</b>					
$V_F$	$I_F=15\text{A}, T_j = 25(125)^\circ\text{C}$		2.05(2.2)	2.5	V
<b>Mechanical Data</b>					
$M_d$	Mounting torque (M5) Terminal connection torque (M5)		2.5-4.0/22-35 2.5-4.0/22-35		Nm/lb.in.
$w$				190	g