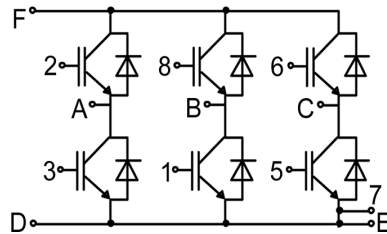
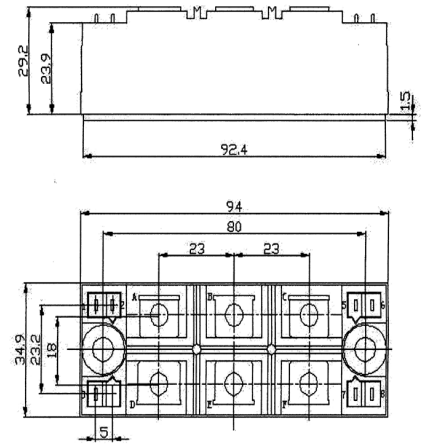


6SI40N12

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
IGBT Wechselrichter/ IGBT Inverter			
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}		± 20	V
Diode Wechselrichter/ Diode Inverter			
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	A^2s
IGBT Brems-Chopper/ IGBT Brake-Chopper			
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}		± 20	V
Diode Brems-Chopper/ Diode Brake-Chopper			
I_F		10	A
I_{FRM}	$t_P = 1\text{ms}$	20	A
Module Isolation/ Module Isolation			
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
IGBT Wechselrichter/ IGBT Inverter					
$V_{GE(TO)}$	$V_{GE} = V_{CE}$, $I_C = 1.5\text{mA}$	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
Diode Wechselrichter/ Diode Inverter					
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)		μC
E_{rec}	$V_{GE} = -10\text{V}$, $V_R=600\text{V}$		1.55(3.1)		mJ
IGBT Brems-Chopper/ IGBT Brake-Chopper					
$V_{CE sat}$	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
Diode Brems-Chopper/ Diode Brake-Chopper					
V_F	$I_F=15\text{A}$, $T_j = 25(125)^{\circ}\text{C}$		2.05(2.2)	2.5	V
Mechanical Data					
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