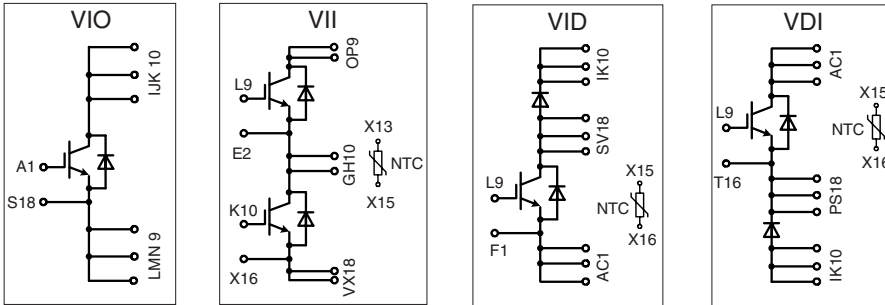


IGBT Modules in ECO-PAC 2

Short Circuit SOA Capability
 Square RBSOA

$I_{C25} = 121 \text{ A}$
 $V_{CES} = 600 \text{ V}$
 $V_{CE(sat) \text{ typ.}} = 2.3 \text{ V}$

Preliminary data sheet



Pin arrangement see outlines

IGBTs

Symbol	Conditions	Maximum Ratings	
V_{CES}	$T_{VJ} = 25^{\circ}\text{C to } 150^{\circ}\text{C}$	600	V
V_{GES}		± 20	V
I_{C25}	$T_C = 25^{\circ}\text{C}$	121	A
I_{C80}	$T_C = 80^{\circ}\text{C}$	83	A
I_{CM}	$V_{GE} = \pm 15 \text{ V}; R_G = 2.2 \Omega; T_{VJ} = 125^{\circ}\text{C}$ RBSOA, Clamped inductive load; $L = 100 \mu\text{H}$	200	A
V_{CEK}		360	V
t_{SC} (SCSOA)	$V_{CE} = V_{CES}; V_{GE} = \pm 15 \text{ V}; R_G = 2.2 \Omega; T_{VJ} = 125^{\circ}\text{C}$ non-repetitive	10	μs
P_{tot}	$T_C = 25^{\circ}\text{C}$	379	W

Symbol	Conditions	Characteristic Values ($T_{VJ} = 25^{\circ}\text{C}$, unless otherwise specified)		
		min.	typ.	max.
$V_{CE(sat)}$	$I_C = 130 \text{ A}; V_{GE} = 15 \text{ V}; T_{VJ} = 25^{\circ}\text{C}$ $T_{VJ} = 125^{\circ}\text{C}$	2.3	2.9	V
			2.6	V
$V_{GE(th)}$	$I_C = 1.5 \text{ mA}; V_{GE} = V_{CE}$	4.5		V
I_{CES}	$V_{CE} = V_{CES}; V_{GE} = 0 \text{ V}; T_{VJ} = 25^{\circ}\text{C}$ $T_{VJ} = 125^{\circ}\text{C}$		1.2	mA
			7.5	mA
I_{GES}	$V_{CE} = 0 \text{ V}; V_{GE} = \pm 20 \text{ V}$			400 nA
$t_{d(on)}$	Inductive load, $T_{VJ} = 125^{\circ}\text{C}$ $V_{CE} = 300 \text{ V}; I_C = 80 \text{ A}$ $V_{GE} = 15/0 \text{ V}; R_G = 2.2 \Omega$	25		ns
t_r		11		ns
$t_{d(off)}$		150		ns
t_f		30		ns
E_{on}		0.8		mJ
E_{off}		2.3		mJ
C_{ies}	$V_{CE} = 25 \text{ V}; V_{GE} = 0 \text{ V}; f = 1 \text{ MHz}$	4.2		nF
R_{thJC}	(per IGBT)		0.33	K/W
R_{thJH}	with heatsink compound ($0.42 \text{ K/m.K}; 50 \mu\text{m}$)	0.66		K/W

Features

- NPT IGBT's
 - positive temperature coefficient of saturation voltage
 - fast switching
- FRED diodes
 - fast reverse recovery
 - low forward voltage
- Industry Standard Package
 - solderable pins for PCB mounting
 - isolated DCB ceramic base plate

Advantages

- space and weight savings
- reduced protection circuits
- leads with expansion bend for stress relief

Typical Applications

- AC and DC motor control
- AC servo and robot drives
- power supplies
- welding inverters

Recommended replacement:
Please contact your local sales office

IXYS reserves the right to change limits, test conditions and dimensions.

Reverse diodes (FRED)

Symbol	Conditions	Maximum Ratings	
I_{F25}	$T_C = 25^\circ\text{C}$	134.0	A
I_{F80}	$T_C = 80^\circ\text{C}$	82.3	A

Symbol	Conditions	Characteristic Values		
		min.	typ.	max.
V_F	$I_F = 80\text{ A}; T_{VJ} = 25^\circ\text{C}$ $T_{VJ} = 125^\circ\text{C}$	1.85	2.06	V
I_{RM} t_{rr}	$I_F = 60\text{ A}; di/dt = 500\text{ A}/\mu\text{s}; T_{VJ} = 125^\circ\text{C}$ $V_R = 300\text{ V}; V_{GE} = 0\text{ V}$	28	100	A ns
R_{thJC} R_{thJH}	with heatsink compound (0.42 K/m.K; 50 μm)	0.66	1.32	K/W K/W

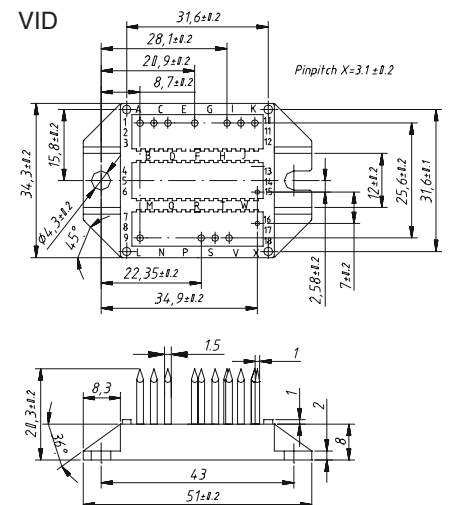
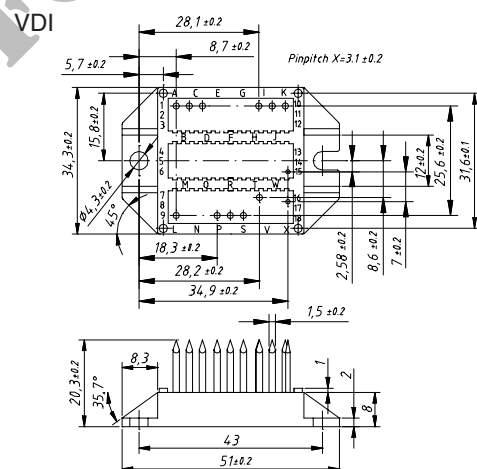
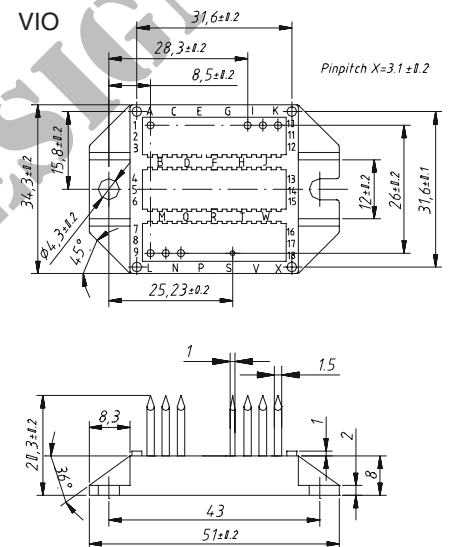
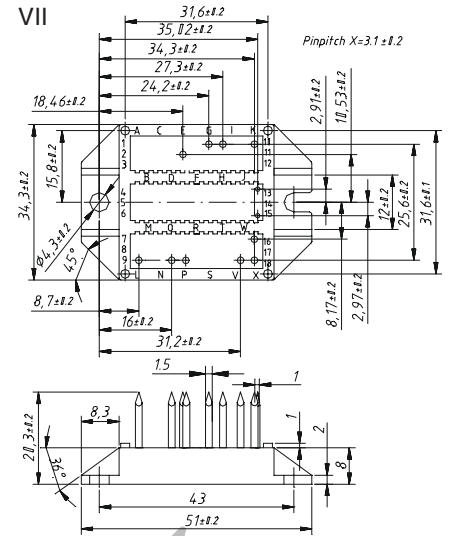
Temperature Sensor NTC

Symbol	Conditions	Characteristic Values		
		min.	typ.	max.
R_{25} $B_{25/50}$	$T = 25^\circ\text{C}$	4.75	5.0	5.25 k Ω K

Module

Symbol	Conditions	Maximum Ratings	
T_{VJ} T_{stg}		-40...+150	$^\circ\text{C}$ $^\circ\text{C}$
V_{ISOL}	$I_{ISOL} \leq 1\text{ mA}; 50/60\text{ Hz}$	3000	V~
M_d	mounting torque (M4)	1.5 - 2.0	Nm lb.in.
a	Max. allowable acceleration	50	m/s^2

Symbol	Conditions	Characteristic Values		
		min.	typ.	max.
d_s d_A	Creepage distance on surface (Pin to heatsink) Strike distance in air (Pin to heatsink)	11.2		mm mm
Weight		24		g



Data according to IEC 60747 and refer to a single transistor or diode unless otherwise stated. IXYS reserves the right to change limits, test conditions and dimensions.