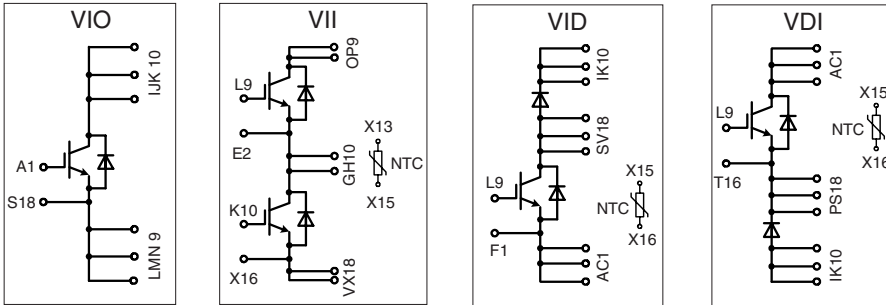


IGBT Modules in ECO-PAC 2

Short Circuit SOA Capability
 Square RBSOA

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

Preliminary data sheet



Pin arrangement see outlines

IGBTs

Symbol	Conditions	Maximum Ratings	
V_{CES}	$T_{VJ} = 25^{\circ}\text{C}$ to 150°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		
		$(T_{VJ} = 25^{\circ}\text{C}, \text{ unless otherwise specified})$		
		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
$V_{GE(th)}$	$I_C = 1.5\text{ mA}$; $V_{GE} = V_{CE}$	4.5		6.5 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 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

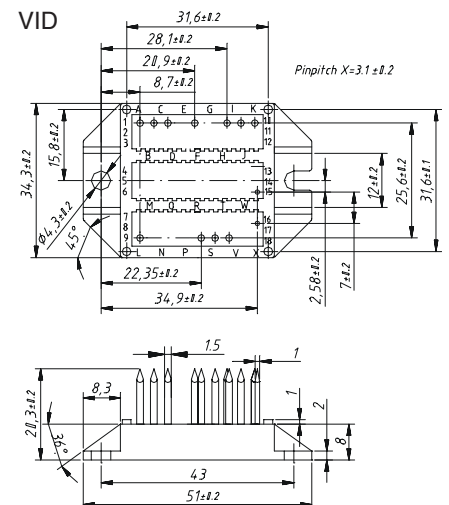
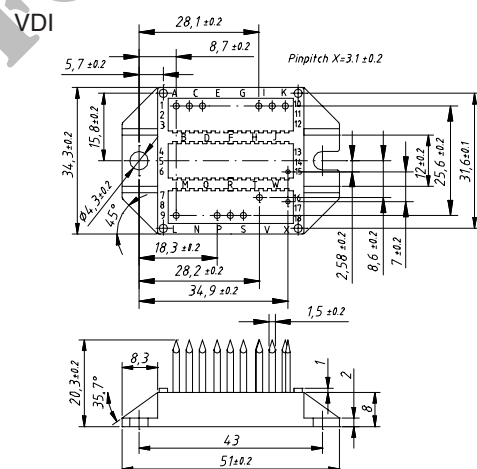
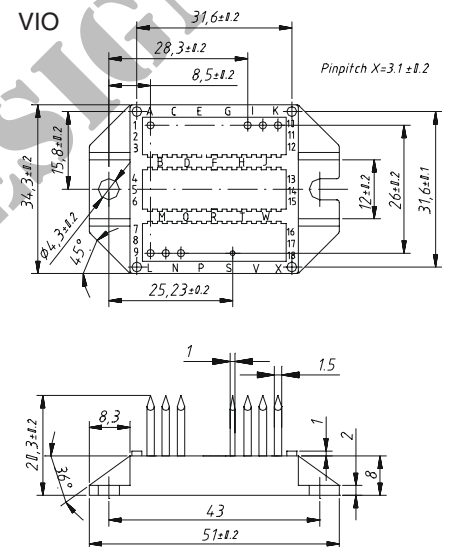
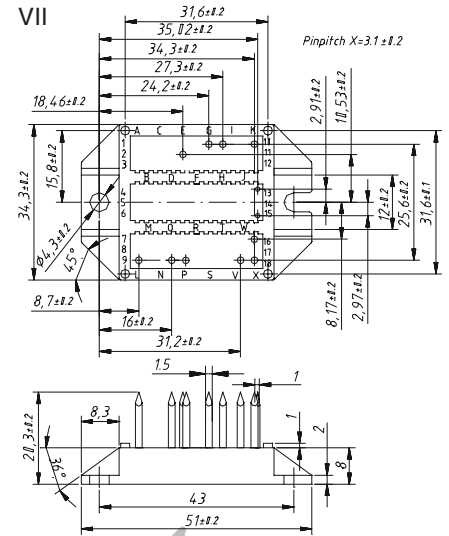
Temperature Sensor NTC

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.