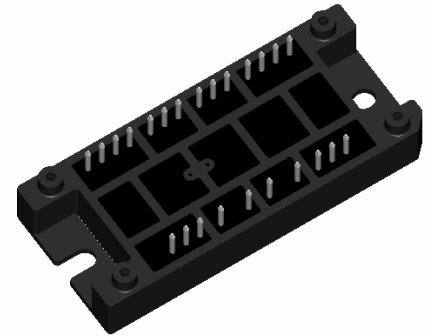
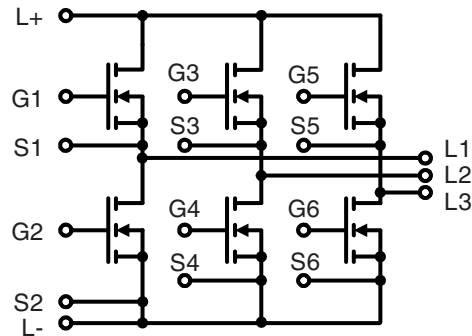


## Three phase full bridge with Trench MOSFETs

$$V_{DSS} = 100 \text{ V}$$

$$R_{DSon} = 3.6 \text{ m}\Omega$$

$$I_{D25} = 210 \text{ A}$$



### MOSFETs

Symbol	Conditions	Maximum Ratings	
$V_{DSS}$	$T_{VJ} = 25^{\circ}\text{C to } 150^{\circ}\text{C}$	100	V
$V_{GS}$		$\pm 20$	V
$I_{D25}$	$T_C = 25^{\circ}\text{C}$	210	A
$I_{D80}$	$T_C = 80^{\circ}\text{C}$	170	A
$I_{D25}$	$T_C = 25^{\circ}\text{C}$ (diode)	210	A
$I_{D80}$	$T_C = 80^{\circ}\text{C}$ (diode)	170	A

### Applications

AC drives

- in automobiles and trucks
  - electric power steering
  - starter generator
  - etc...

- in industrial vehicles
  - propulsion drives
  - fork lift drives

- in battery supplied equipment

Symbol	Conditions	Characteristic Values ( $T_{VJ} = 25^{\circ}\text{C}$ , unless otherwise specified)		
		min.	typ.	max.
$R_{DSon}$	$V_{GS} = 10 \text{ V}; I_D = 100 \text{ A}$		3.6	5.2 m $\Omega$
$V_{GSth}$	$V_{DS} = 20 \text{ V}; I_D = 2 \text{ mA}$	2		4 V
$I_{DSS}$	$V_{DS} = 100 \text{ V}; V_{GS} = 0 \text{ V}; T_{VJ} = 25^{\circ}\text{C}$ $T_{VJ} = 125^{\circ}\text{C}$		0.25	0.02 mA mA
$I_{GSS}$	$V_{GS} = \pm 20 \text{ V}; V_{DS} = 0 \text{ V}$			0.2 $\mu\text{A}$
$Q_g$ $Q_{gs}$ $Q_{gd}$	$V_{GS} = 10 \text{ V}; V_{DS} = 80 \text{ V}; I_D = 200 \text{ A}$		430	nC
			90	nC
			180	nC
$t_{d(on)}$ $t_r$ $t_{d(off)}$ $t_f$	$V_{GS} = 10 \text{ V}; V_{DS} = 50 \text{ V};$ $I_D = 50 \text{ A}; R_G = 2.7 \Omega$		40	ns
			100	ns
			260	ns
			100	ns
$V_F$	(diode) $I_F = 100 \text{ A}; V_{GS} = 0 \text{ V}$		1.0	1.5 V
$t_{rr}$	(diode) $I_F = 40 \text{ A}; -di/dt = 200 \text{ A}/\mu\text{s}; V_{DS} = 30 \text{ V}$		100	ns
$R_{thJC}$ $R_{thJH}$	with heat transfer paste			0.26 K/W K/W
			0.51	

### Features

- MOSFETs in trench technology:
  - low  $R_{DSon}$
  - optimized intrinsic reverse diode
- package:
  - high level of integration
  - solder terminals for PCB mounting
  - isolated DCB ceramic base plate with optimized heat transfer

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

### Module

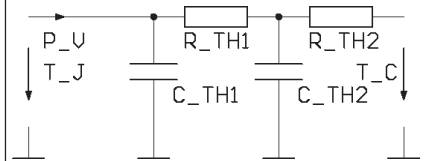
Symbol	Conditions	Maximum Ratings	
$T_{VJ}$		-40...+175	°C
$T_{stg}$		-40...+125	°C
$V_{ISOL}$	$I_{ISOL} \leq 1 \text{ mA}; 50/60 \text{ Hz}; t = 1 \text{ min}$	500	V~
$M_d$	Mounting torque (M5)	2 - 2.5	Nm

Symbol	Conditions	Characteristic Values ( $T_{VJ} = 25^\circ\text{C}$ , unless otherwise specified)		
		min.	typ.	max.
Weight	typ.		80	g

### Equivalent Circuits for Simulation

#### Thermal Response

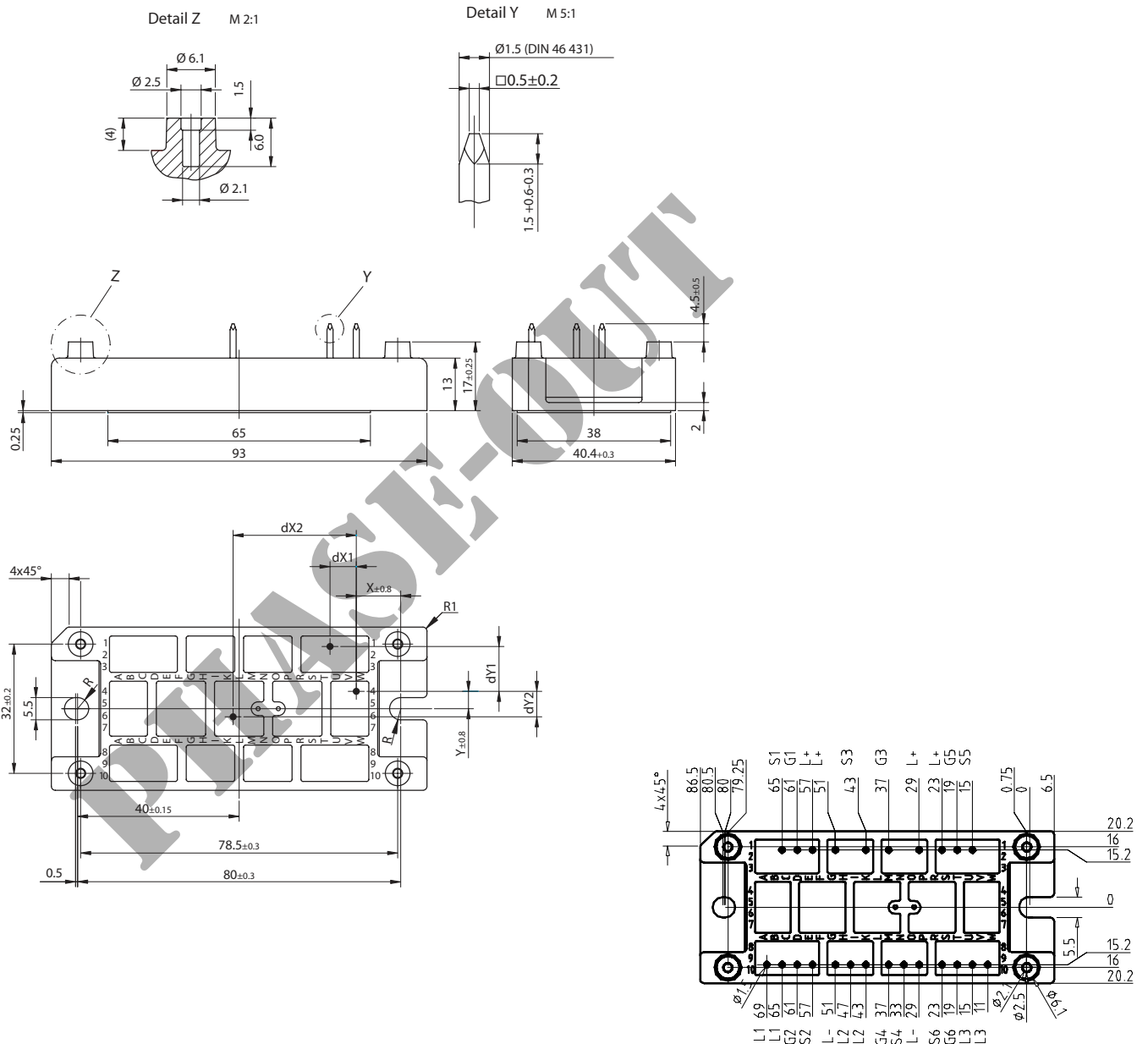


junction - case (typ.)

$$C_{th1} = 0.13 \text{ J/K}; R_{th1} = 0.08 \text{ K/W}$$

$$C_{th2} = 0.22 \text{ J/K}; R_{th2} = 0.18 \text{ K/W}$$

### Dimensions in mm (1 mm = 0.0394")



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