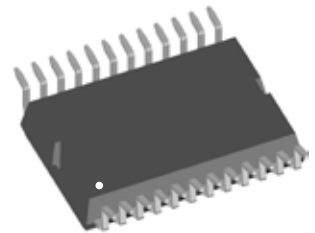
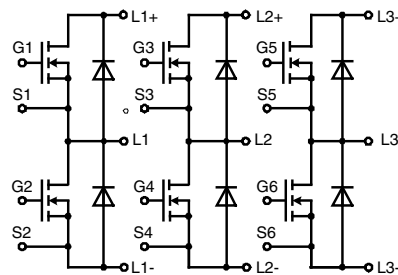


Three phase full Bridge

with Trench MOSFETs
in DCB isolated high current package

$V_{DSS} = 55 \text{ V}$
 $I_{D25} = 150 \text{ A}$
 $R_{DSon \text{ typ.}} = 2.2 \text{ m}\Omega$



MOSFETs			
Symbol	Conditions	Maximum Ratings	
V_{DSS}	$T_{VJ} = 25^\circ\text{C to } 150^\circ\text{C}$	55	V
V_{GS}		± 20	V
I_{D25}	$T_C = 25^\circ\text{C}$	150	A
I_{D90}	$T_C = 90^\circ\text{C}$	115	A
I_{F25}	$T_C = 25^\circ\text{C (diode)}$	140	A
I_{F90}	$T_C = 90^\circ\text{C (diode)}$	90	A

Applications

- AC drives
- in automobiles
 - electric power steering
 - starter generator
 - in industrial vehicles
 - propulsion drives
 - fork lift drives
 - in battery supplied equipment

Features

- MOSFETs in trench technology:
 - low R_{DSon}
 - optimized intrinsic reverse diode
- package:
 - high level of integration
 - high current capability
 - aux. terminals for MOSFET control
 - terminals for soldering or welding connections
 - isolated DCB ceramic base plate with optimized heat transfer
- Space and weight savings

Symbol	Conditions	Characteristic Values			
		min.	typ.	max.	
($T_{VJ} = 25^\circ\text{C}$, unless otherwise specified)					
$R_{DSon}^{1)}$	on chip level at } $V_{GS} = 10 \text{ V}$	$T_{VJ} = 25^\circ\text{C}$	2.2	3.1	$\text{m}\Omega$
		$T_{VJ} = 125^\circ\text{C}$	3.7	5.3	$\text{m}\Omega$
$V_{GS(th)}$	$V_{DS} = 20 \text{ V}; I_D = 1 \text{ mA}$		2.0	4.0	V
I_{DSS}	$V_{DS} = V_{DSS}; V_{GS} = 0 \text{ V}$	$T_{VJ} = 25^\circ\text{C}$		1	μA
		$T_{VJ} = 125^\circ\text{C}$		50	μA
I_{GSS}	$V_{GS} = \pm 20 \text{ V}; V_{DS} = 0 \text{ V}$			0.2	μA
Q_g	} $V_{GS} = 10 \text{ V}; V_{DS} = 28 \text{ V}; I_D = 100 \text{ A}$		110		nC
Q_{gs}			35		nC
Q_{gd}			25		nC
$t_{d(on)}$	} inductive load $V_{GS} = 10 \text{ V}; V_{DS} = 24 \text{ V}$ $I_D = 100 \text{ A}; R_G = 39 \Omega;$ $T_J = 125^\circ\text{C}$		100		ns
t_r			110		ns
$t_{d(off)}$			500		ns
t_f			100		ns
E_{on}			0.12		mJ
E_{off}			0.53		mJ
E_{recoff}		0.01		mJ	
R_{thJC}				1.0	K/W
R_{thJH}	with heat transfer paste (IXYS test setup)		1.3	1.6	K/W

¹⁾ $V_{DS} = I_D \cdot (R_{DS(on)} + 2R_{Pin \text{ to Chip}})$

Source-Drain Diode

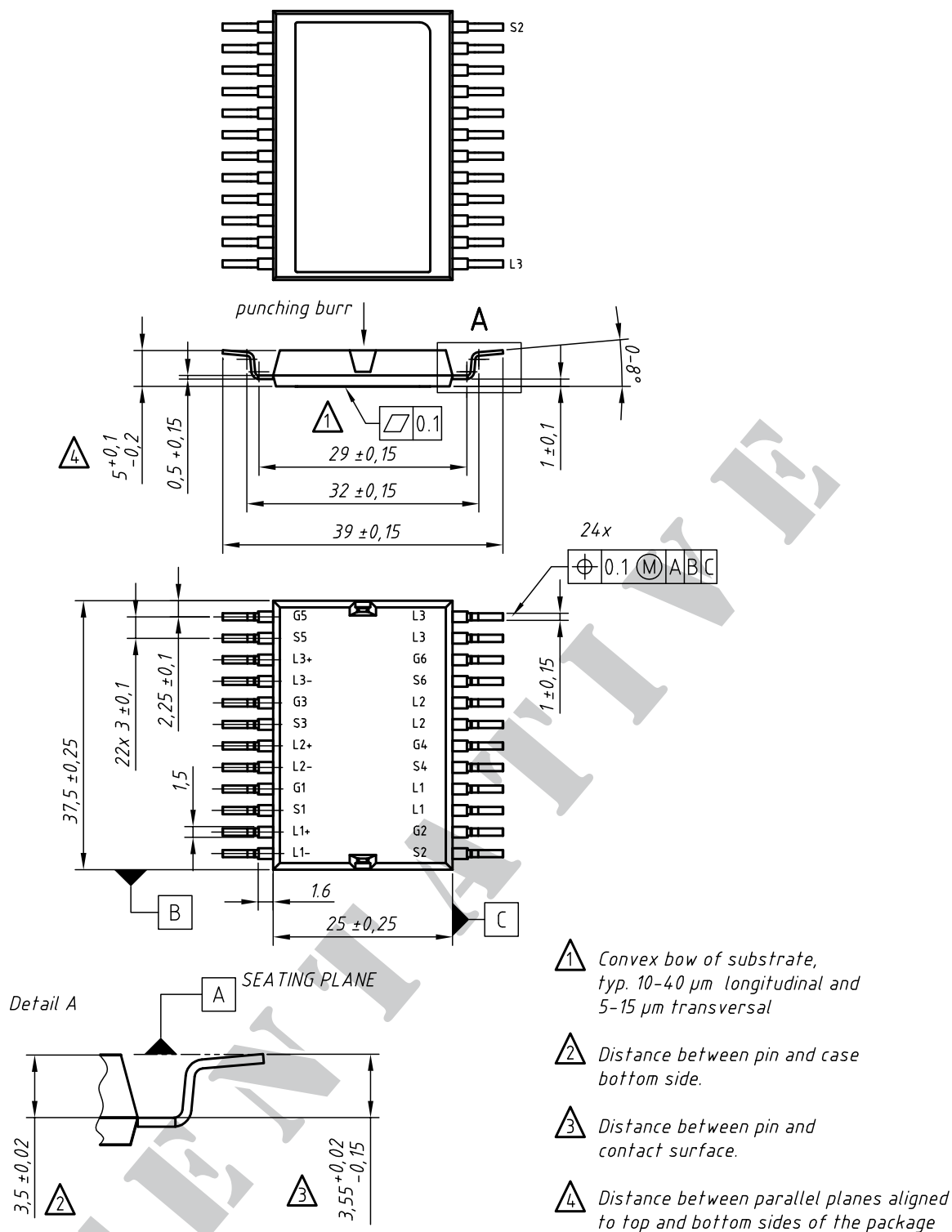
Symbol	Conditions	Characteristic Values			
		min.	typ.	max.	
(T _J = 25°C, unless otherwise specified)					
V _{SD}	(diode) I _F = 80 A; V _{GS} = 0 V		0.9	1.2	V
t _{rr}	I _F = 100 A; -di _F /dt = 800 A/μs V _R = 24 V; T _J = 125°C		38		ns
Q _{RM}			0.45		μC
I _{RM}			22		A

Component

Symbol	Conditions	Maximum Ratings	
I _{RMS}	per pin in main current paths (P+, N-, L1, L2, L3) may be additionally limited by external connections 2 pins for output L1, L2, L3	75	A
T _J		-55...+175	°C
T _{stg}		-55...+125	°C
V _{ISOL}	I _{ISOL} ≤ 1 mA, 50/60 Hz, f = 1 minute	1000	V~
F _C	mounting force with clip	50 - 250	N

Symbol	Conditions	Characteristic Values		
		min.	typ.	max.
R _{pin to chip} ¹⁾			tbd	mΩ
C _P	coupling capacity between shorted pins and back side metallization		160	pF
Weight			25	g

¹⁾ V_{DS} = I_D · (R_{DS(on)} + 2R_{Pin to Chip})



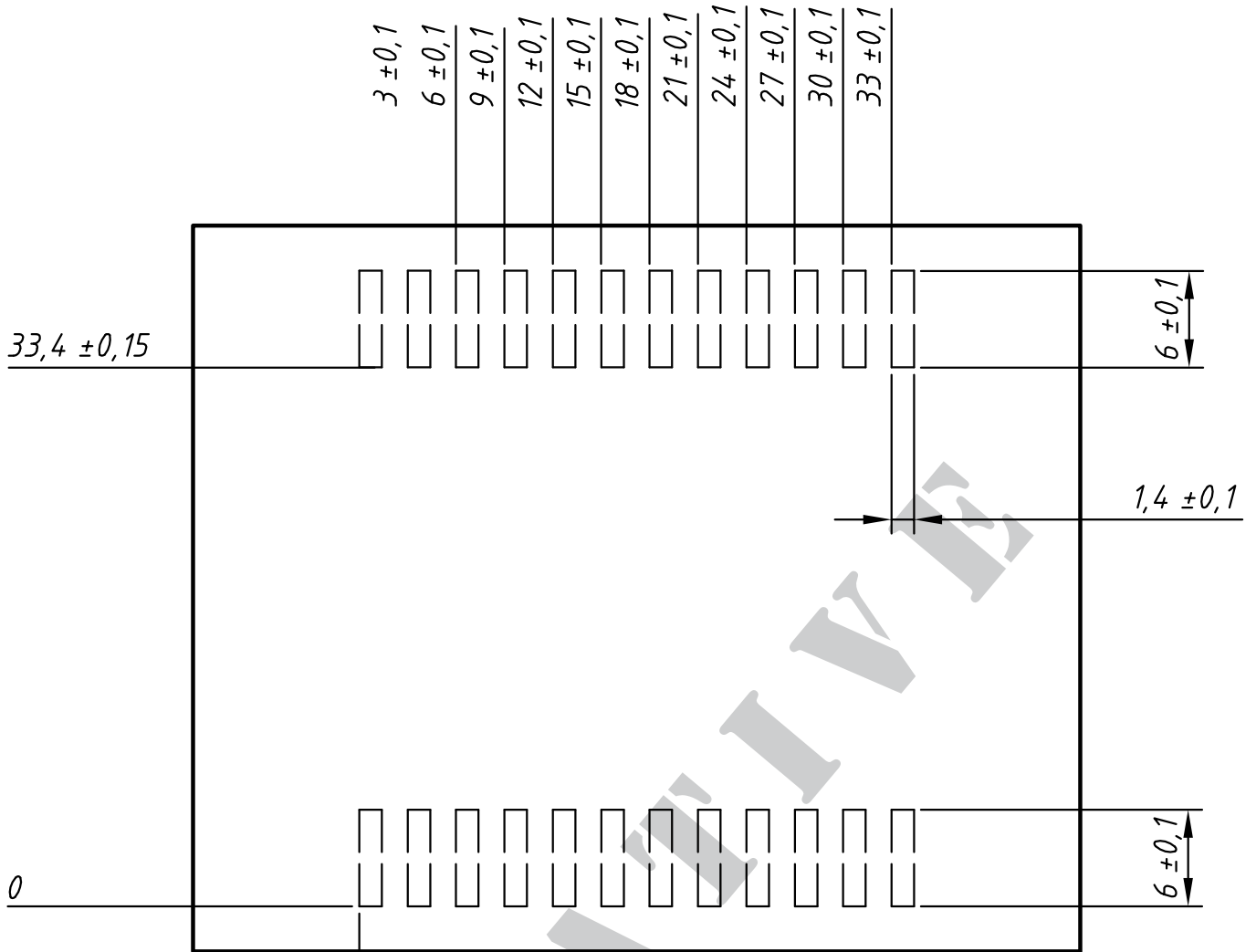
contact pin:

- galv. tin plating, per pin side: Sn $10...25 \mu\text{m}$, undercoating Ni $0,2...1 \mu\text{m}$
- stamping edges may be free of tin
- punching burr: $\leq 0,05\text{mm}$

Leads	Ordering	Part Name & Packing Unit Marking	Part Marking	Delivering Mode	Base Qty.	Ordering Code
SMD	Standard	GMM 3x160-0055X2 - SMD	GMM 3x160-0055X2	Blister	28	507 504

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

20110307



Remarks:

- 1) pin layout / dimensions are conditionally
- 2) soldering paste thickness: 200µm