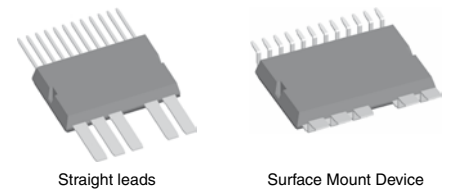
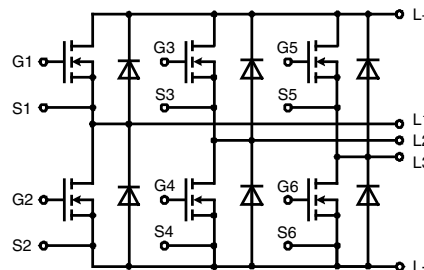


# Three phase full Bridge

with Trench MOSFETs  
in DCB isolated high current package

$V_{DSS} = 85 \text{ V}$   
 $I_{D25} = 103 \text{ A}$   
 $R_{DSon \text{ typ.}} = 5.5 \text{ m}\Omega$



### MOSFETs

Symbol	Conditions	Maximum Ratings	
$V_{DSS}$	$T_J = 25^\circ\text{C to } 150^\circ\text{C}$	85	V
$V_{GS}$		$\pm 20$	V
$I_{D25}$	$T_C = 25^\circ\text{C}$	103	A
$I_{D90}$	$T_C = 90^\circ\text{C}$	77	A
$I_{D110}$	$T_C = 110^\circ\text{C}$	68	A
$I_{F25}$	$T_C = 25^\circ\text{C}$ (diode)	tbd	A
$I_{F90}$	$T_C = 90^\circ\text{C}$ (diode)	tbd	A
$I_{F110}$	$T_C = 110^\circ\text{C}$ (diode)	tbd	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 300 A max.
  - 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

( $T_J = 25^\circ\text{C}$ , unless otherwise specified)

		min.	typ.	max.	
$R_{DSon}^{1)}$	on chip level at $V_{GS} = 10 \text{ V}; I_D = 75 \text{ A}$		5.5	6.2	$\text{m}\Omega$
			12.7		$\text{m}\Omega$
$V_{GS(th)}$	$V_{DS} = 20 \text{ V}; I_D = 250 \mu\text{A}$	2.0		4.0	V
$I_{DSS}$	$V_{DS} = V_{DSS}; V_{GS} = 0 \text{ V}$			5	$\mu\text{A}$
			100		$\mu\text{A}$
$I_{GSS}$	$V_{GS} = \pm 20 \text{ V}; V_{DS} = 0 \text{ V}$			0.2	$\mu\text{A}$
$Q_g$	$V_{GS} = 10 \text{ V}; V_{DS} = 42 \text{ V}; I_D = 75 \text{ A}$		114		nC
$Q_{gs}$			30		nC
$Q_{gd}$			35		nC
$t_{d(on)}$	inductive load $V_{GS} = 10 \text{ V}; V_{DS} = 42 \text{ V}$ $I_D = 75 \text{ A}; R_G = 39 \Omega;$ $T_J = 125^\circ\text{C}$		tbd		ns
$t_r$			tbd		ns
$t_{d(off)}$			tbd		ns
$t_f$			tbd		ns
$E_{on}$				tbd	
$E_{off}$			tbd		mJ
$E_{recoff}$			tbd		mJ
$R_{thJC}$	with heat transfer paste (IXYS test setup)			1.0	K/W
$R_{thJH}$			1.3	1.6	K/W

<sup>1)</sup>  $V_{DS} = I_D \cdot (R_{DS(on)} + R_{Pin \text{ to Chip}})$

**Source-Drain Diode**

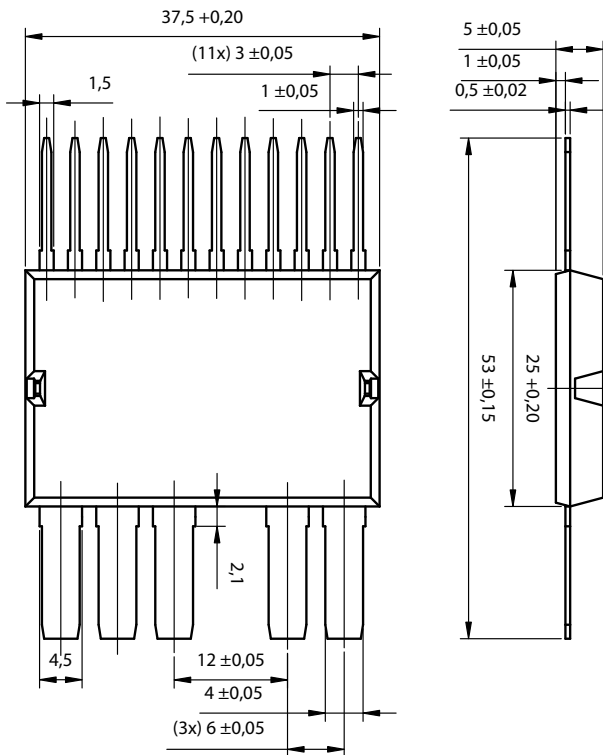
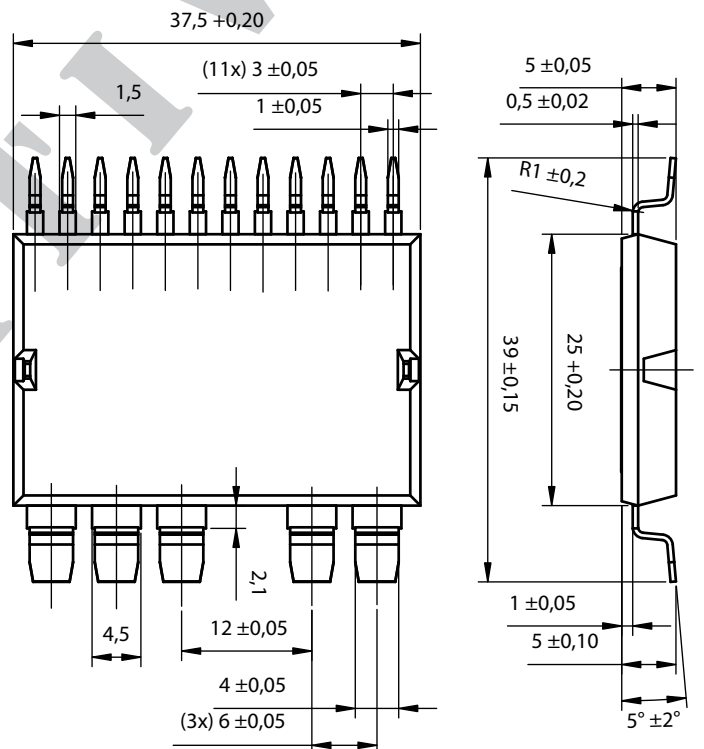
Symbol	Conditions	Characteristic Values			
		min.	typ.	max.	
( $T_J = 25^\circ\text{C}$ , unless otherwise specified)					
$V_{SD}$	(diode) $I_F = 100\text{ A}$ ; $V_{GS} = 0\text{ V}$		0.9	1.2	V
$t_{rr}$	$I_F = 100\text{ A}$ ; $-di_F/dt = 800\text{ A}/\mu\text{s}$ ; $V_R = 24\text{ V}$ $T_{VJ} = 125^\circ\text{C}$		tbd		ns
$Q_{RM}$			tbd		$\mu\text{C}$
$I_{RM}$			tbd		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	300	A
$T_J$		-55...+175	$^\circ\text{C}$
$T_{stg}$		-55...+125	$^\circ\text{C}$
$V_{ISOL}$	$I_{ISOL} \leq 1\text{ mA}$ , 50/60 Hz, $f = 1\text{ minute}$	1000	V~
$F_C$	mounting force with clip	50 - 250	N

Symbol	Conditions	Characteristic Values		
		min.	typ.	max.
$R_{pin\ to\ chip}^{1)}$	L+ to L1/L2/L3 or L- to L1/L2/L3		1.0	$\text{m}\Omega$
$C_P$	coupling capacity between shorted pins and mounting tab in the case		160	$\text{pF}$
<b>Weight</b>			25	g

<sup>1)</sup>  $V_{DS} = I_D \cdot (R_{DS(on)} + R_{Pin\ to\ Chip})$

**Straight Leads GWM 100-085X1-SL**

**Surface Mount Device GWM 100-085X1-SMD**


Leads	Ordering	Part Name & Packing Unit Marking	Part Marking	Delivering Mode	Base Qty.	Ordering Code
Straight	Standard	GWM 100-0085X1 - SL	GWM 100-0085X1	Blister	28	tbd
SMD	Standard	GWM 100-0085X1 - SMD	GWM 100-0085X1	Blister	28	tbd