

Absolute Maximum Ratings			
Symbol	Conditions ¹⁾	Values	Units
V_{RRM}		1200	V
I_{FSM}	(≥ 3 bondwires 300 μm $\varnothing$)		
	$t_p = 10 \text{ ms}$; $\sin$; $T_j = 150 \text{ }^\circ\text{C}$	350	A
I_t^2	$t_p = 10 \text{ ms}$; $\sin$; $T_j = 150 \text{ }^\circ\text{C}$	540	A^2s
T_{solder}	max. 120 s (transfer)	375	$^\circ\text{C}$
T_{vj} , T_{stg}	min	- 55	$^\circ\text{C}$
T_{vj} , T_{stg}	max	+ 150	$^\circ\text{C}$

SEMICELL CAL - Diode Chips³⁾

SKCD 31C 120 I

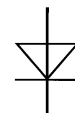
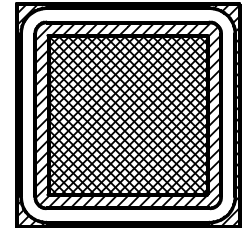
5,6 x 5,6 mm; 30 A⁴⁾; 1200 V

Characteristics					
Symbol	Conditions ¹⁾	min.	typ.	max.	Units
I_{RM}	$T_j = 25 \text{ }^\circ\text{C}/125 \text{ }^\circ\text{C}$; V_{RRM}			0,1 / 4	mA
V_F	$I_F = 25 \text{ A}$; $T_j = 25 \text{ }^\circ\text{C}$		1,85	2,35	V
	$T_j = 125 \text{ }^\circ\text{C}$		1,7		V
V_F	$I_F = 40 \text{ A}$; $T_j = 25 \text{ }^\circ\text{C}$		2,20		V
	$T_j = 125 \text{ }^\circ\text{C}$		2,1		V
$V_{T(TO)}$	$T_j = 125 \text{ }^\circ\text{C}$, see Fig. 1		1,0	1,2	V
r_T	$T_j = 125 \text{ }^\circ\text{C}$		26	40	m Ω
I_{RRM}	$I_F = 25 \text{ A}$; ²⁾				
	$T_j = 125 \text{ }^\circ\text{C}$		25		A
Q_{rr}	$I_F = 25 \text{ A}$; $T_j = 25 \text{ }^\circ\text{C}$		2		μC
	²⁾ $T_j = 125 \text{ }^\circ\text{C}$		4,5		μC
T_{solder}	10 min		250		$^\circ\text{C}$
T_{solder}	5 min			320	$^\circ\text{C}$

Mechanical Data			
A_{tot}	total area	31	mm ²
$A_{\text{act.}}$	active area	20	mm ²
w	weight	20	mg
Supplied on frames, on request Please contact factory			

- ¹⁾ $T_{\text{case}} = 25 \text{ }^\circ\text{C}$, unless otherwise specified
²⁾ $V_R = 600 \text{ V}$; $-di_F/dt = 500 \text{ A}/\mu\text{s}$;
³⁾ CAL = Controlled Axial Lifetime Technology
⁴⁾ Soldered on DCB ceramic (Al_2O_3) 0,4 mm thick
 on a 3 mm copper base plate $R_{\text{thjc}} = 1 \text{ K/W}$
 $T_{jm} = 150 \text{ }^\circ\text{C}$; $T_{\text{case}} = 80 \text{ }^\circ\text{C}$.

GBCD031



Features

- Low voltage drop
- low temperature dependence
- Very soft reverse recovery under **all** conditions
- CAL = Controlled Axial Lifetime Technology
- Top side = Al for bonding by aluminum wire
- Bottom = 4 layer metallisation for soldering

Typical Applications

- Inverse diode for IGBT (in inverter drives)
- Freewheeling diode in brake choppers or step-up choppers with IGBT or MOSFET
- UPS Uninterruptible Power Supplies
- Hybrid circuits for static power converters

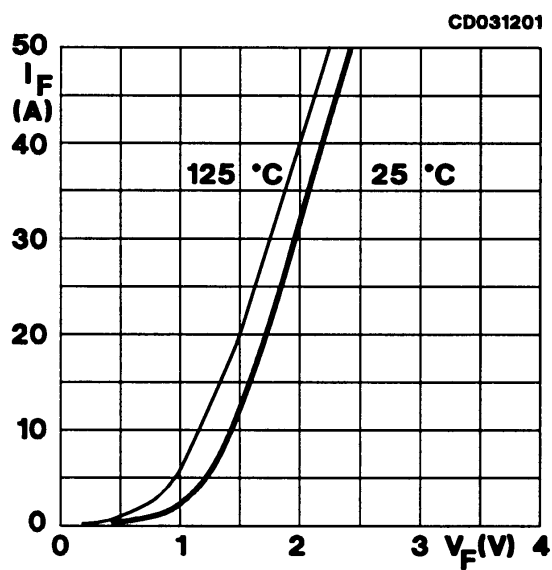


Fig. 1 Typ. CAL diode forward characteristic

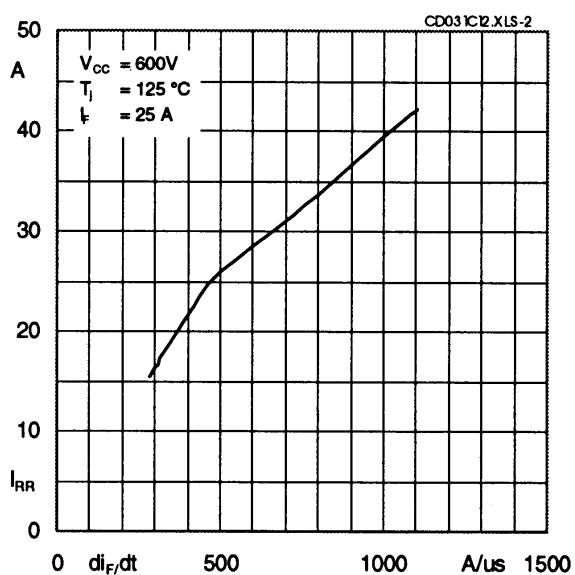


Fig. 2 Typ peak reverse recovery current $I_{RR} = f (di_F/dt)$

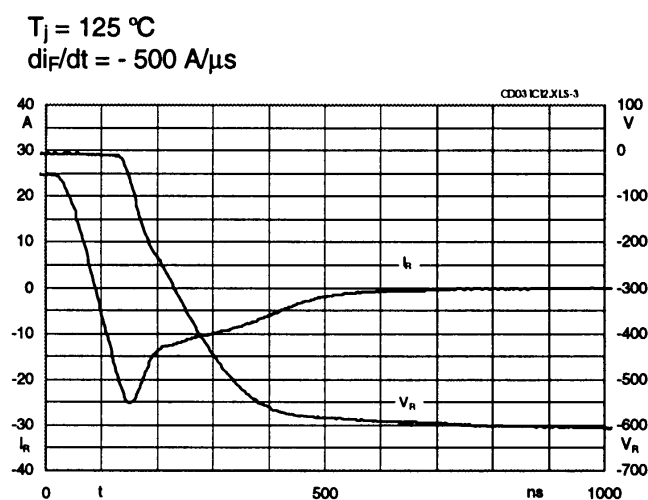


Fig. 3 Typ. diode reverse recovery behaviour $i = f (t)$

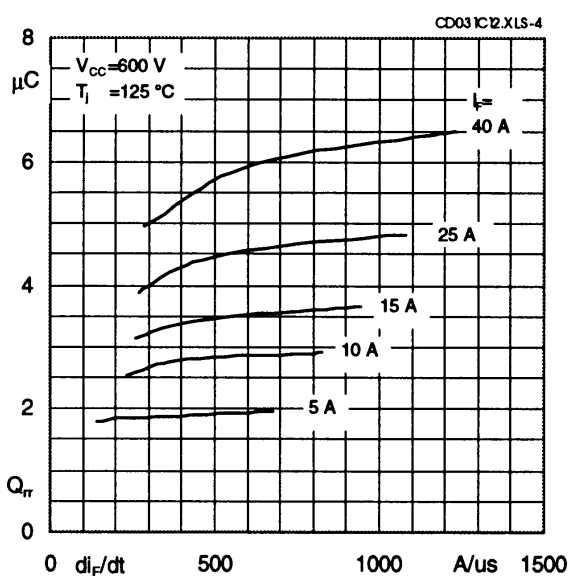


Fig. 4 Typ. reverse recovery charge $Q_{rr} = f (di_F/dt)$

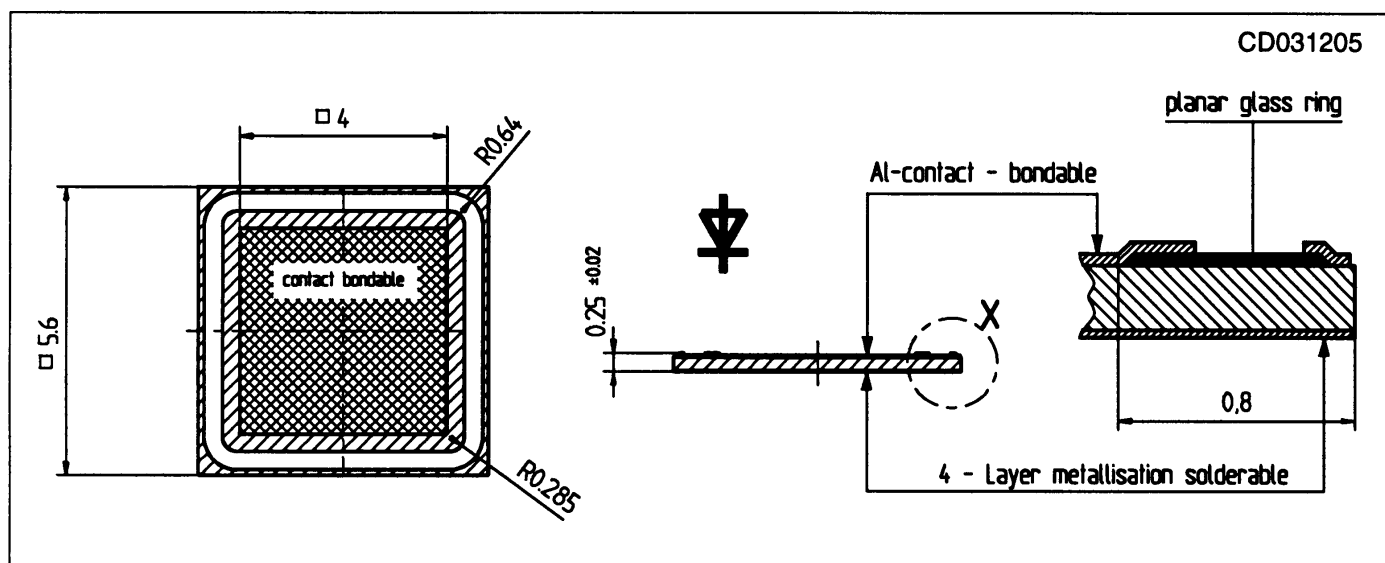


Fig. 5 Mechanical outline (dimensions in mm)