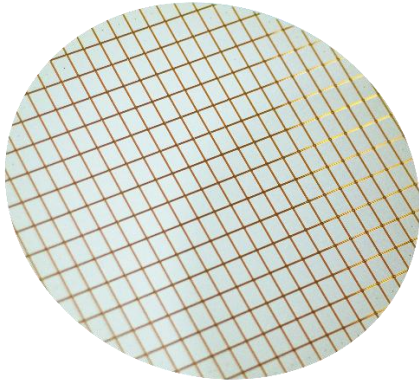


DATASHEET

SID0300C170d23

d23 QLLC Diode, 8.9mm x 12.4mm



$V_{RRM} = 1700\text{ V}$

$I_F = 300\text{ A}$

- d23 quasi local lifetime control diode design
- extremely soft switching and low recovery losses
- positive temperature coefficient
- easy paralleling

Maximum ratings¹

PARAMETER	SYMBOL	CONDITIONS	MIN	MAX	UNIT
Repetitive peak reverse voltage	V_{RRM}	$T_{vj} \geq 25\text{ °C}$		1700	V
Continuous forward current	I_F	$T_{vj} < 175\text{ °C}$		300	A
Maximum repetitive forward current	I_{FRM}	t_p limited by $T_{vj\text{ max}}$ $T_{vj\text{ max}}$		600	A
Junction temperature	T_{vj}		-40	175	°C
Junction operating temperature	$T_{vj(op)}$		-40	175	°C



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¹ Maximum rated values indicate limits beyond which damage to the device may occur per IEC 60747



Diode²

PARAMETER	SYMBOL	CONDITIONS		MIN	TYP	MAX	UNIT	
Cathode-Anode breakdown voltage	V _(BR)	I _R = 0.25mA, T _{vj} = 25°C		1700			V	
Forward voltage drop	V _F	I _F = 300 A	T _{vj} = 25 °C		1.95		V	
			T _{vj} = 125 °C		2.15		V	
			T _{vj} = 175 °C		2.15		V	
Reverse leakage current	I _R	V _R = 1700 V	T _{vj} = 25 °C			1	μA	
Peak reverse recovery current	I _{RM}	V _R = 900 V, I _F = 300 A, di/dt = 2850 A/μs (175°C), R _G = 1.5 Ω, V _{GE} = ± 15 V, IGBT: SIS0300C170i23	T _{vj} = 25 °C		250		A	
			T _{vj} = 125 °C		285		A	
			T _{vj} = 175 °C		300		A	
Recovery charge	Q _{rr}		T _{vj} = 25 °C		54		μC	
			T _{vj} = 125 °C		85		μC	
			T _{vj} = 175 °C		103		μC	
Reverse recovery time	t _{rr}		T _{vj} = 25 °C		750		ns	
			T _{vj} = 125 °C		1050		ns	
			T _{vj} = 175 °C		1250		ns	
Reverse recovery energy	E _{rec}		T _{vj} = 25 °C		25		mJ	
			T _{vj} = 125 °C		40		mJ	
			T _{vj} = 175 °C		53		mJ	

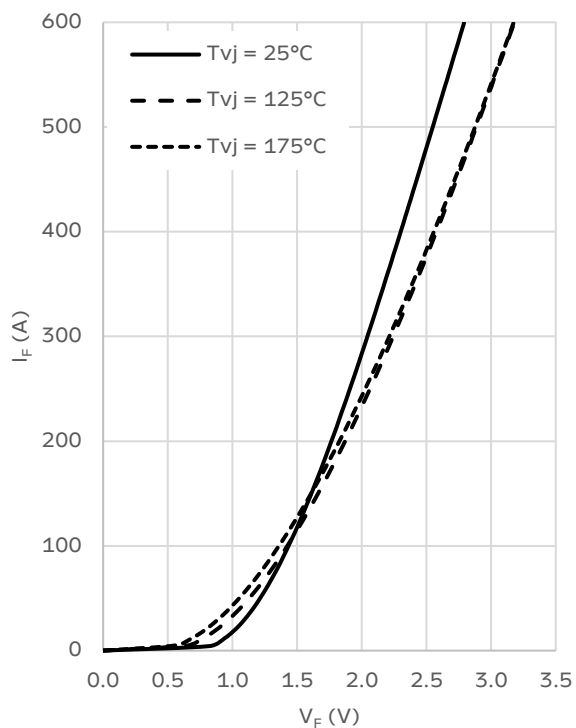
² Characteristic values according to IEC 60747-2



Characteristics

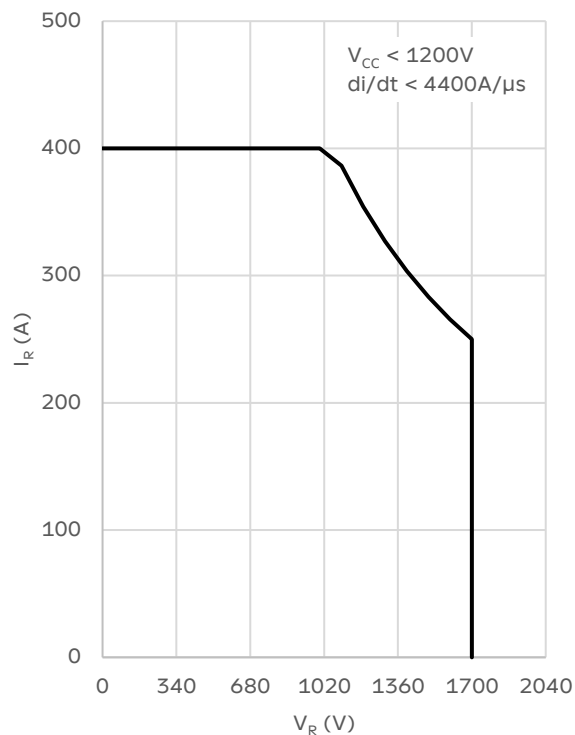
Diode forward characteristic (typical)

$$I_F = f(V_F)$$



Diode SOA

$$T_{vj} \leq 175^\circ\text{C}$$

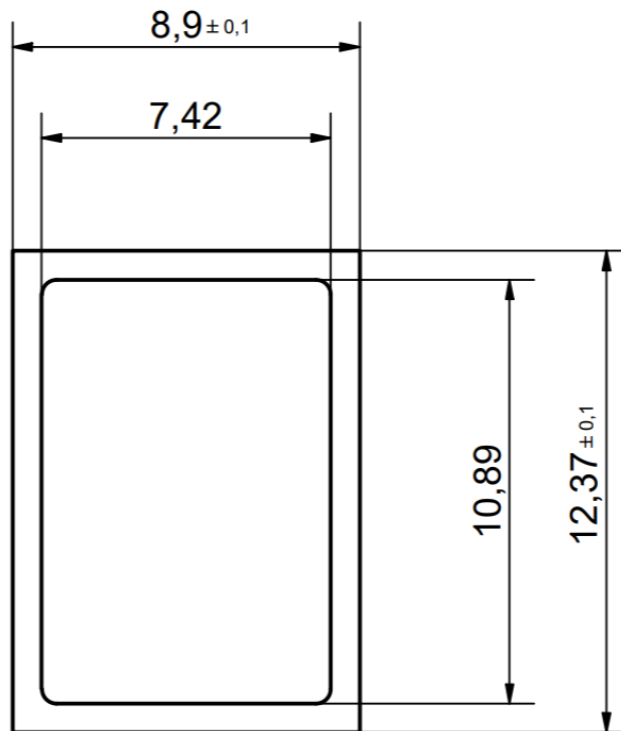


Mechanical properties

PARAMETER		UNIT
Die size	(8.90 ± 0.01) x (12.37 ± 0.01)	mm ²
Thickness	175 ± 5	μm
Wafer diameter	200	mm
Maximum chips per wafer	220	pcs
Frontside passivation	Polyimide	
Frontside metal	AlSiCu, 5000nm	
Backside metal	Al Ni Ag System, 1100nm	



Chip drawing



This is an electrostatic sensitive device.

Ordering Information

OPTION		ARTICLE NUMBER
Packaging Method	Sawn on tape (_O10)	SID0300C170D23_O10
	Wafer unsawn (_O20)	SID0300C170D23_O20
	Waffle pack (_O30)	SID0300C170D23_O30