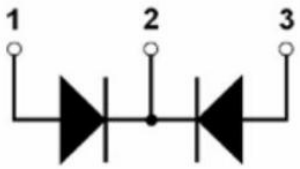
Features

- Planar passivated chips
- Very low leakage current
- Very short recovery time
- Improved thermal behaviour
- Very low Irm-values
- Avalanche voltage rated for reliable operation
- Soft reverse recovery for low EMI/RFI
- Low Irm reduces:
  - Power dissipation within the diode
  - Turn-on loss in the commutating switch

Applications

- Antiparallel diode for high frequency switching devices
- Antisaturation diode
- Snubber diode
- Free wheeling diode
- Rectifiers in switch mode power supplies (SMPS)
- Uninterruptible power supplies (UPS)



Absolute Maximum Ratings vs.Electrical Characteristics

(T_C=25°C unless otherwise specified)

Parameter	Symbol	Test Conditions		Values	Unit
Maximum Repetitive Reverse Voltage	V_{RRM}			300	V
Reverse current	I_R	V_R=300V	Tvj=25℃ Tvj=150℃	1 0.06	μA mA
Forward voltage	V_F	I_F=10A I_F=20A	Tvj=25℃	1.27 1.45	V
		I_F=10A I_F=20A	Tvj=150℃	0.98 1.17	
Average Forward Current	$I_{F(AV)}$	Rectangular d=0.5,T_C=145°C		10	A
Threshold Voltage	V_{F0}	Power loss calculation only，Tvj=175℃		0.74	V
Slope resistance	r_F			17.7	mΩ

Thermal resistance junction to case	R_{thJC}			2.30	K/W
Virtual junction temperature	T_{vj}			-55~175	℃
Total power dissipation	P_{tot}	T_C=25°C		65	W
Max.forward surge current	I_{FSM}	T=10ms(50Hz),sine, Tvj=45℃		140	A
Max.reverse recovery current	I_{RM}		Tvj=25℃	3	A
		I_F=10A, V_R=200V	Tvj=150℃	5.5	
Reverse recovery time	t_{rr}		Tvj=25℃	35	ns
		-di$_F$/dt= 200A/μS	Tvj=150℃	45	
Junction capacitance	C=	VR=150V,f=1MHz, Tvj=25℃		15	pF
RMS current	I_{RMS}	Per pin [1]		35	A
Thermal resistance case to heatsink	R_{thCH}			0.50	K/W
Storage temperature	T_{stg}			-55~150	℃
Weight				2	g
Mounting torque	M_D			0.4~0.6	Nm
Mounting force with clip	F_C			20~60	N

1. is typically limited by: 1. pin-to-chip resistance; or by 2. current capability of the chip. In case of 1, a common cathode/anode configuration and a non-isolated backside, the whole current capability can be used by connecting the backside.

Electrical characteristics(Curves)

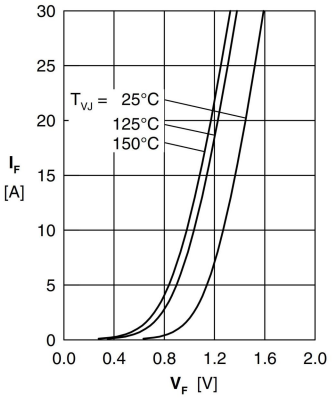


Fig. 1 Forward current I_F versus forward voltage drop V_F

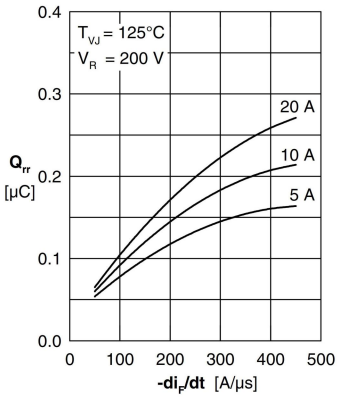


Fig. 2 Typ. reverse recovery charge Q_{rr} versus -di_F/dt

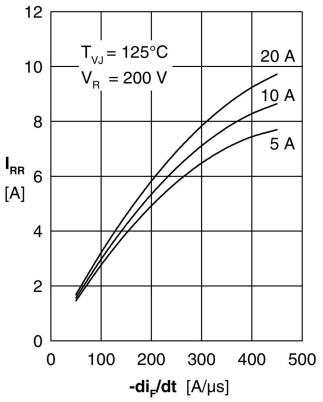


Fig. 3 Typ. reverse recovery current I_{RR} versus -di_F/dt

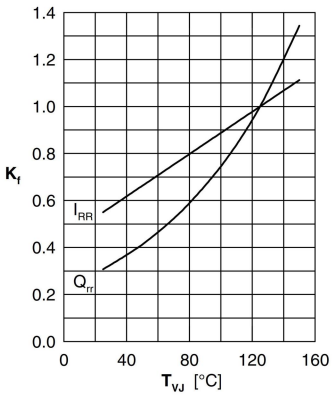


Fig. 4 Dynamic parameters Q_{rr}, I_{RR} versus T_{VJ}

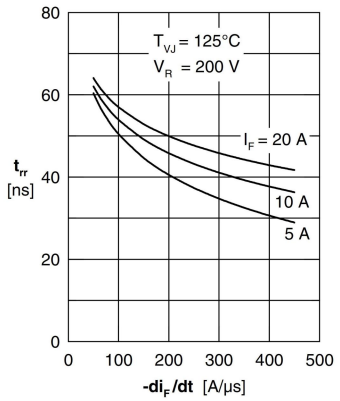


Fig. 5 Typ. reverse recovery time t_{rr} versus -di_F/dt

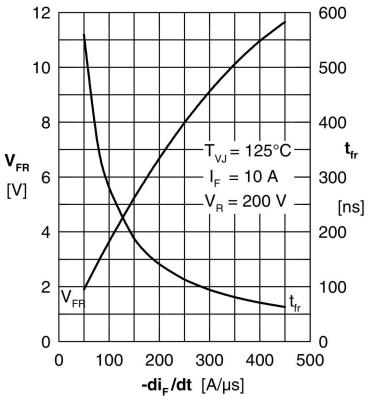


Fig. 6 Typ. forward recovery voltage V_{FR} and t_{fr} versus di_F/dt

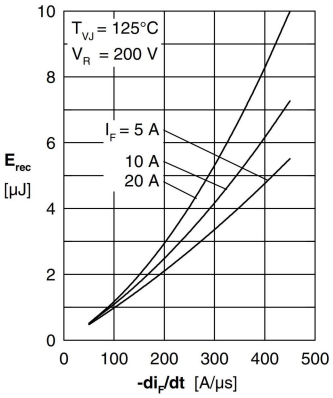
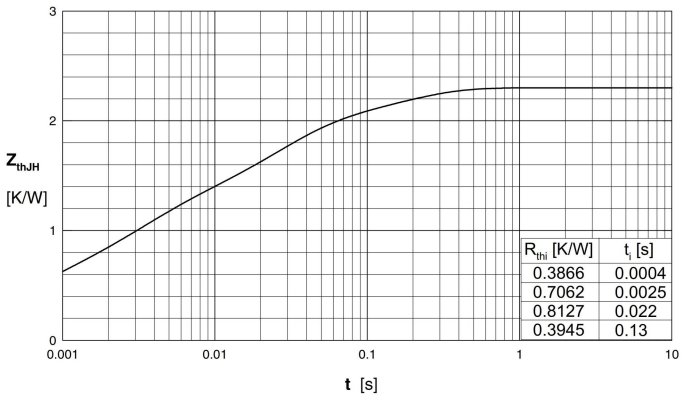


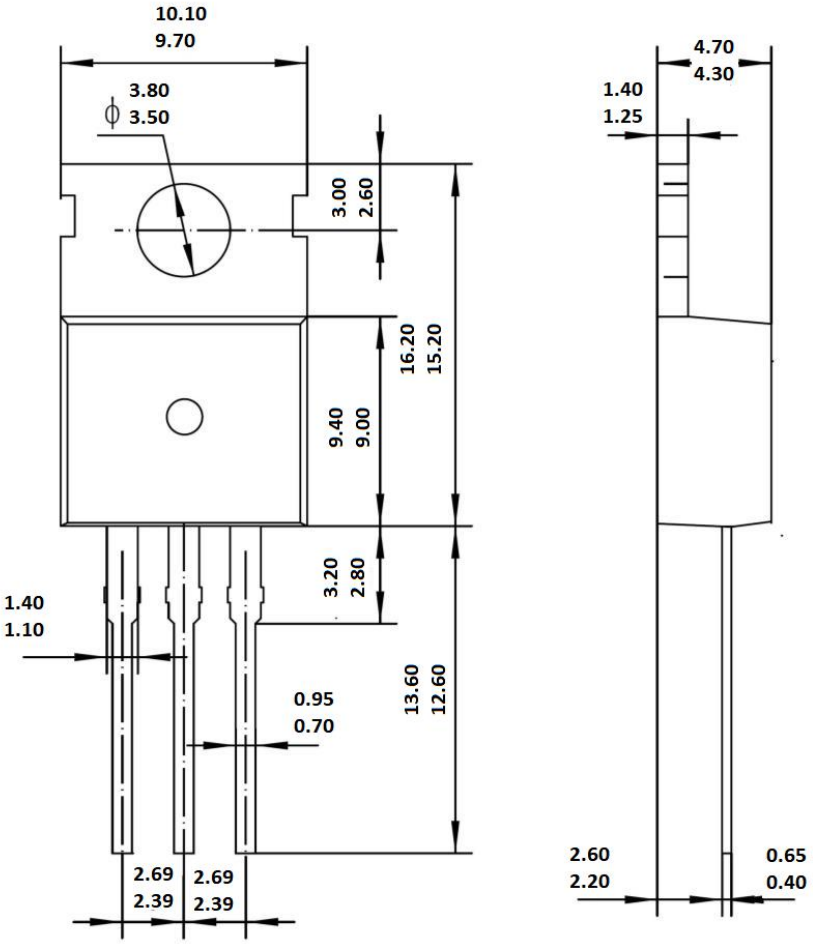
Fig. 7 Typ. recovery energy E_{rec} versus -di_F/dt

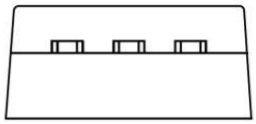


R_{thi} [K/W]	t_i [s]
0.3866	0.0004
0.7062	0.0025
0.8127	0.022
0.3945	0.13

Fig. 8 Transient thermal resistance junction to case

Package outline dimension





TO-220

Unit: mm