



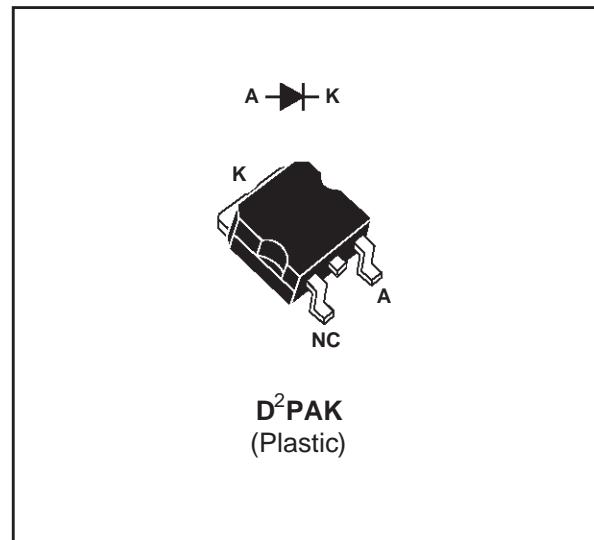
HIGH EFFICIENCY FAST RECOVERY DIODES

MAIN PRODUCT CHARACTERISTICS

$I_{F(AV)}$	8 A
V_{RRM}	200 V
t_{rr}	35 ns
V_F	0.85 V

FEATURES AND BENEFITS

- VERY SMALL CONDUCTION LOSSES
- NEGLIGIBLE SWITCHING LOSSES
- LOW FORWARD AND REVERSE RECOVERY TIMES
- HIGH SURGE CURRENT
- SMD



DESCRIPTION

Single rectifier suited for switchmode power supply and high frequency DC to DC converters. Packaged in a surface mount package D²PAK, this device is intended for use in high frequency inverters, free wheeling and polarity protection applications.

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{RRM}	Repetitive peak reverse voltage	200	V
$I_{F(RMS)}$	RMS forward current	16	A
$I_{F(AV)}$	Average forward current	8	A
		$T_c=120^{\circ}\text{C}$ $\delta = 0.5$	
I_{FSM}	Surge non repetitive forward current (All pins connected)	80	A
		$t_p=10\text{ms}$ sinusoidal	
I_{FRM}	Repetitive peak forward current	75	A
		$t_p = 5 \mu\text{s}$ $f = 5 \text{ kHz}$	
T_{stg} T_j	Storage and junction temperature range	- 40 to + 150	$^{\circ}\text{C}$

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THERMAL RESISTANCE

Symbol	Parameter	Value	Unit
$R_{th(j-c)}$	Junction to case	2.8	°C/W

STATIC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
I_R^*	Reverse leakage current	$V_R = V_{RRM}$	$T_j = 25^\circ\text{C}$			10	μA
			$T_j = 100^\circ\text{C}$			0.6	mA
V_F^{**}	Forward voltage drop	$I_F = 5\text{ A}$	$T_j = 125^\circ\text{C}$			0.85	V
		$I_F = 10\text{ A}$	$T_j = 125^\circ\text{C}$			1.05	
		$I_F = 10\text{ A}$	$T_j = 25^\circ\text{C}$			1.15	

Pulse test : * $t_p = 5\text{ ms}$, $\delta < 2\%$

** $t_p = 380\text{ }\mu\text{s}$, $\delta < 2\%$

To evaluate the conduction losses use the following equation :

$$P = 0.65 \times I_{F(AV)} + 0.040 I_F^2(\text{RMS})$$

RECOVERY CHARACTERISTICS

Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
t_{rr}	Reverse recovery time	$T_j = 25^\circ\text{C}$ $I_{rr} = 0.25\text{ A}$	$I_F = 0.5\text{ A}$ $I_R = 1\text{ A}$			25	ns
			$I_F = 1\text{ A}$ $dI_F/dt = -50\text{ A}/\mu\text{s}$ $V_R = 30\text{ V}$			35	
t_{fr}	Forward recovery time	$T_j = 25^\circ\text{C}$ $dI_F/dt = 100\text{ A}/\mu\text{s}$ $V_{FR} = 1.1 \times V_F \text{ max}$	$I_F = 1\text{ A}$		15		ns
V_{FP}	Peak forward voltage	$T_j = 25^\circ\text{C}$ $dI_F/dt = 100\text{ A}/\mu\text{s}$	$I_F = 1\text{ A}$		2		V

PIN OUT configuration in D²PAK:

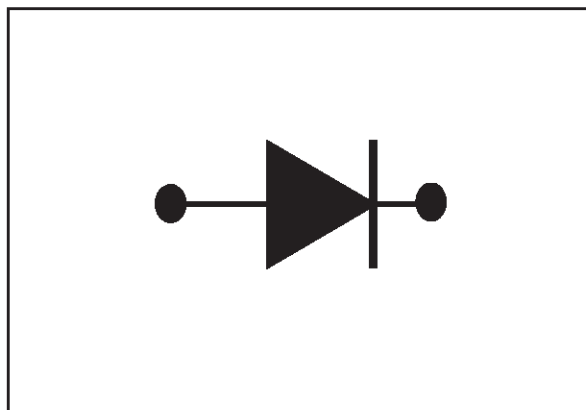


Fig.1 : Average forward power dissipation versus average forward current.

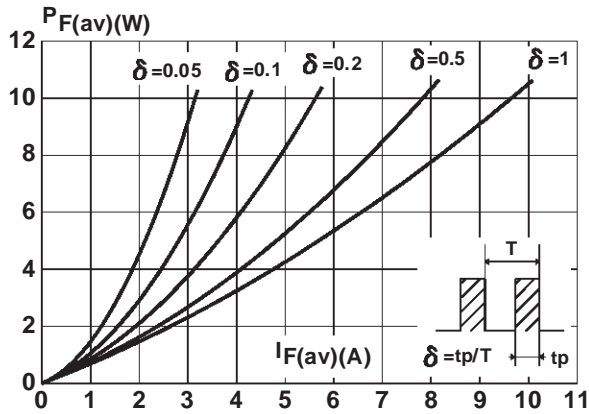


Fig.2 : Peak current versus form factor.

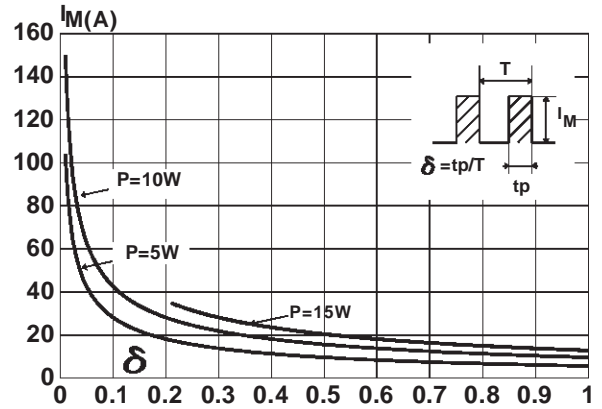


Fig.3 : Forward voltage drop versus forward current (maximum values).

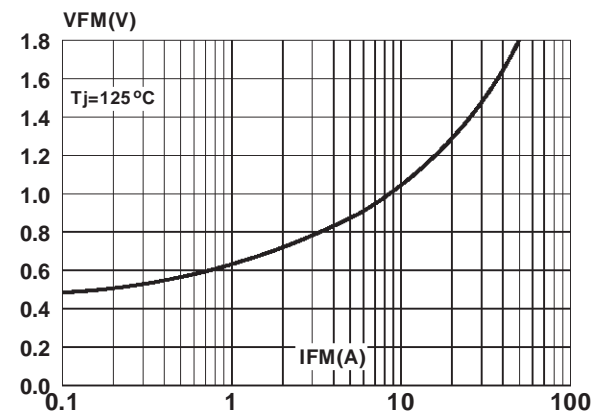


Fig.4 : Relative variation of thermal impedance junction to case versus pulse duration.

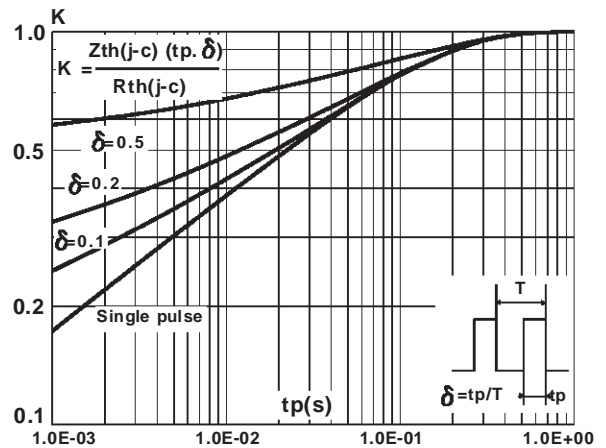


Fig.5 : Non repetitive surge peak forward current versus overload duration.

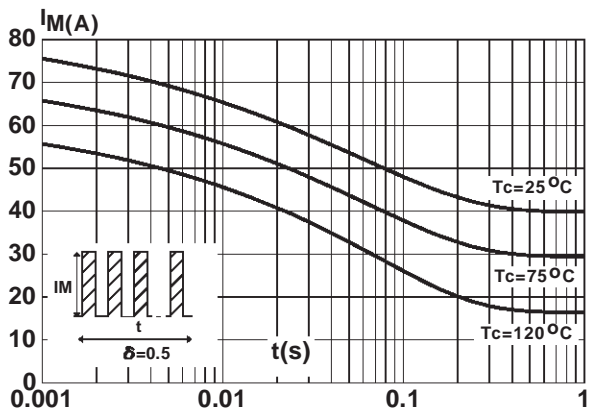
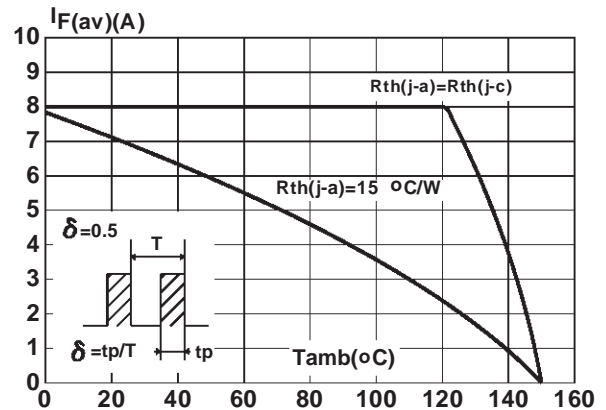


Fig.6 : Average current versus ambient temperature. (duty cycle : 0.5)



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Fig.7 : Junction capacitance versus reverse voltage applied (Typical values).

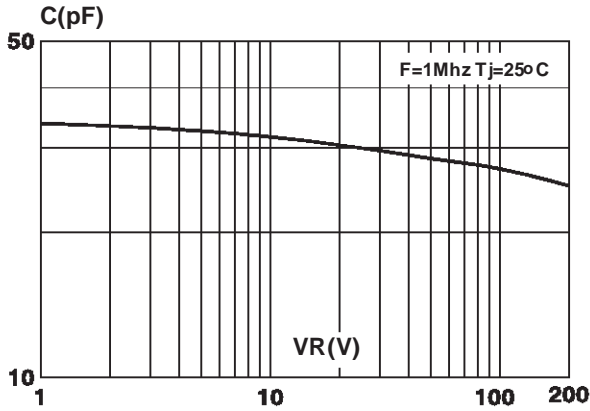


Fig.8 : Recovery charges versus dI_F/dt .

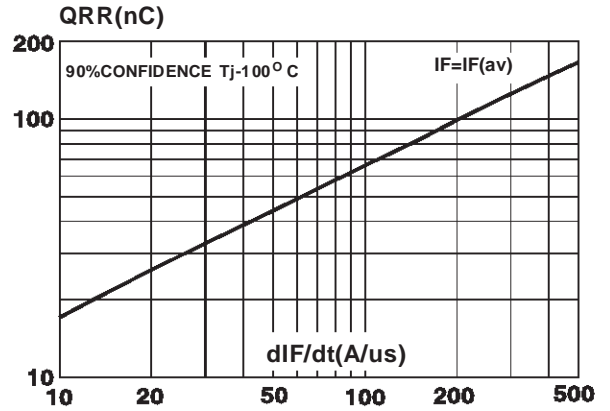


Fig.9 : Peak reverse current versus dI_F/dt .

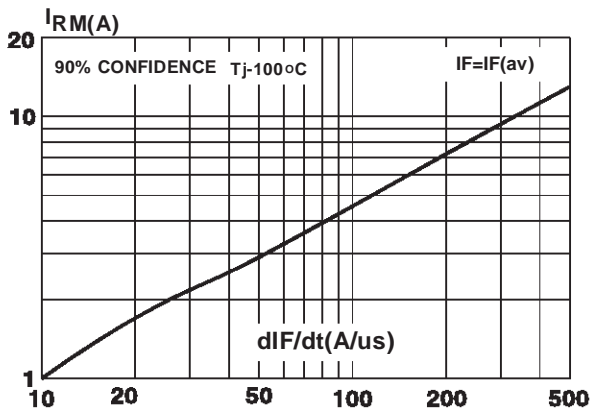
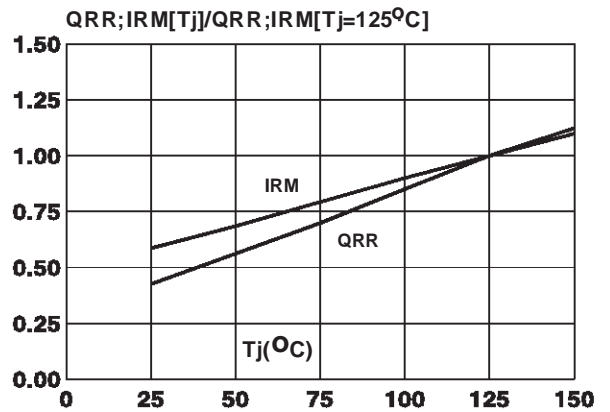
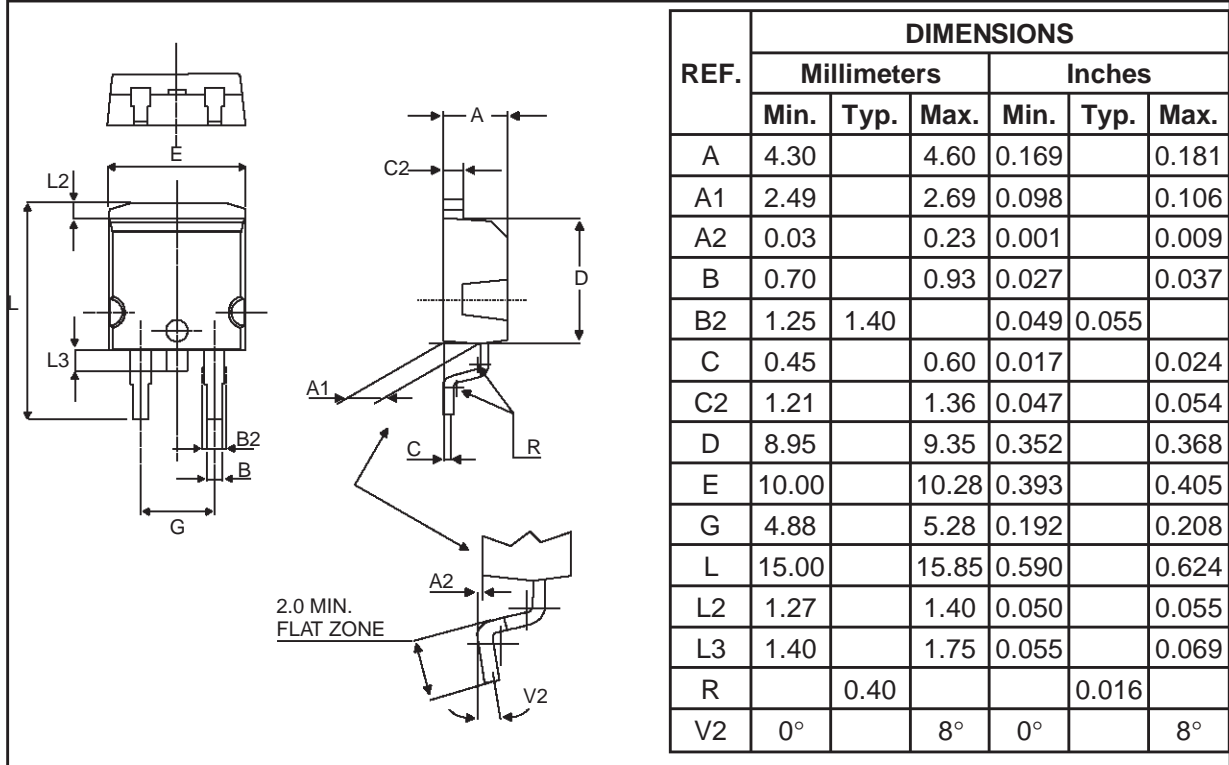


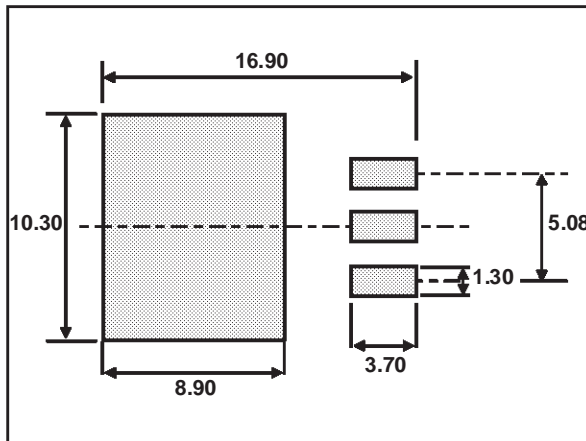
Fig.10 : Dynamic parameters versus junction temperature.



PACKAGE MECHANICAL DATA
D²PAK (Plastic)



FOOT PRINT (in millimeters)



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