Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

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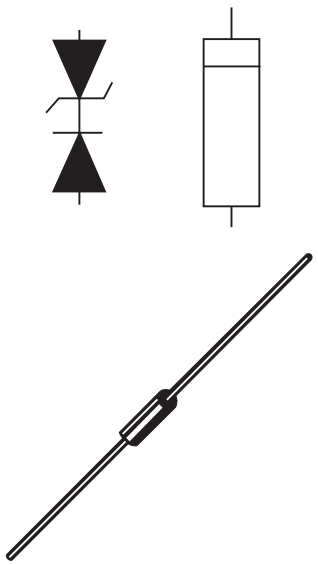
PKC-136

Application Specific Discretes
ASD™

PEAK CLAMP

MAIN PRODUCT CHARACTERISTICS

V_{BR}	160Vdc
V_{DRM}	700Vdc
P	1.5W



DO-15

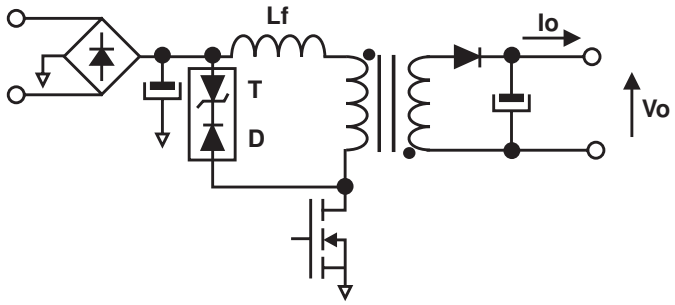
FEATURES

- Protection of the Mosfet in flyback power supply
- TRANSIL™ and blocking diode in a single package

BENEFITS

- Accurate voltage clamping regardless load
- Reduced current loop
- Reduced EMI emission
- High integration
- Fast assembly
- Reduced losses in stand by mode

BASIC CONNECTION



ABSOLUTE MAXIMUM RATINGS (limiting values)

Symbol	Parameter	Value	Unit
T_{stg}	Storage temperature	- 40 to + 150	°C
T_j	Junction temperature	150	°C
P	Maximum power dissipation T°lead = 90°C	1.5	W

ELECTRICAL CHARACTERISTICS TRANSIL

Symbol	Parameter	Test conditions		Value			Unit
				Min.	Typ.	Max.	
I_{RM}	Leakage current	V_R = 136V	T_j = 25°C			1	µA
			T_j =125°C			10	
V_{BR}	Breakdown voltage	I_R = 1mA pulse test < 50ms	T_j = 25°C	150	160	170	V
R_d	Dynamical Resistance	tp < 500ns between I = 0.5Amps and I = 1.5Amps	T_j = 125°C			4	Ω
αT	Temperature Coefficient					10.8	10^{-4}/°C
V_{sCL}	Surge Clamping voltage	Ipp = 2.7Amps 10/1000µs				219	V

CALCULATION OF THE CLAMPING VOLTAGE:

In repetitive mode and for low current rating, use the equation (1) and (2) to calculate the breakdown voltage V_{BR} of the transil versus the operating junction temperature and use the equation (3) to calculate the clamping voltage versus the transil current Ipp and the temperature.

$$\Delta V_{BR} = \alpha T(T_j - 25)V_{BR}(25°C) \quad (1)$$

$$V_{BR}(T_j) = V_{BR}(25°C) + \Delta V_{BR} \quad (2)$$

$$V_{CL}(T_j) = V_{BR}(T_j) + Rd.Ipp \quad (3)$$

ELECTRICAL CHARACTERISTICS DIODE (Tj = 25°C unless otherwise specified)

Symbol	Parameter	Tests conditions		Value			Unit
				Min.	Typ.	Max.	
I_R	Reverse leakage current	$V_R = V_{RRM}$	T_j = 25°C			3	µA
			T_j = 125°C		3	20	
V_{RRM}	Repetitive Peak Reverse Voltage	T_j = 25°C		700			V
trr	Reverse Recovery Time	I_F = 1A dI$_F$ / dt = -50A/µs V_R = 30V				45	ns
V_{FP}	Peak Forward Voltage	I_F = 3A dI$_F$ / dt = 100A/µs	T_j = 25°C			12	V
			T_j = 125°C			18	

CAPACITANCE

Symbol	Parameter	Typical Value	Unit
C	Total Parasitic capacitance 1MHz 30mV	35	pF

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th(j-l)}$	Junction to leads L = 10mm	40	°C/W
$R_{th(j-a)}$	Junction to ambiant condition see note 1	105	°C/W

Note 1: Device mounted on a epoxy FR4 board of 35µm thickness
Lead Length: 10mm
Pad diameter: 4mm
Track width: 1mm
Track length: 25mm
The $Rth_{(j-a)}$ can be reduced by replacing the Cu track by plan:
S(Cu) = 1.5cm^2/lead $R_{th(j-a)}$ = 65°C/W
S(Cu) = 3.5cm^2/lead $R_{th(j-a)}$ = 60°C/W

Fig. 1: Peak pulse power versus exponential pulse duration.

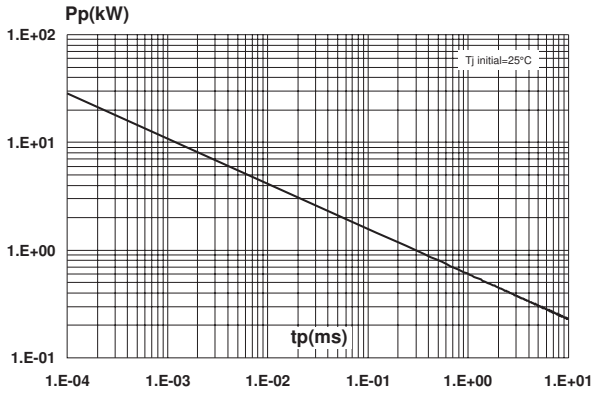


Fig. 2: Relative variation of peak pulse power versus initial junction temperature.

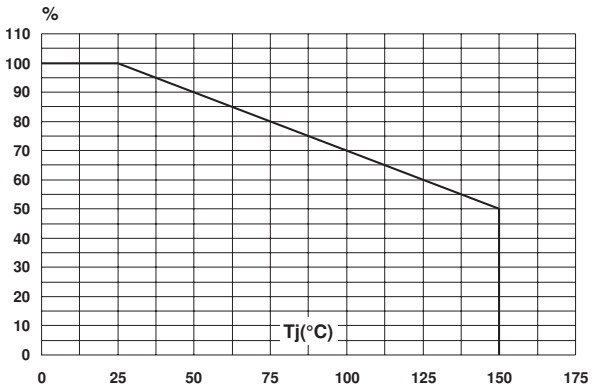


Fig. 3: Average power dissipation versus ambient temperature.

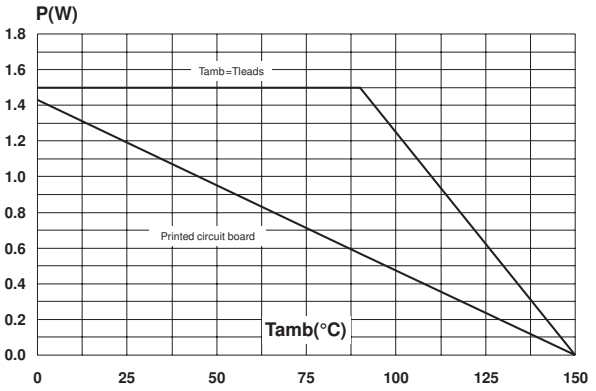


Fig. 4: Variation of thermal impedance junction to ambient versus pulse duration (printed circuit board epoxy FR4)

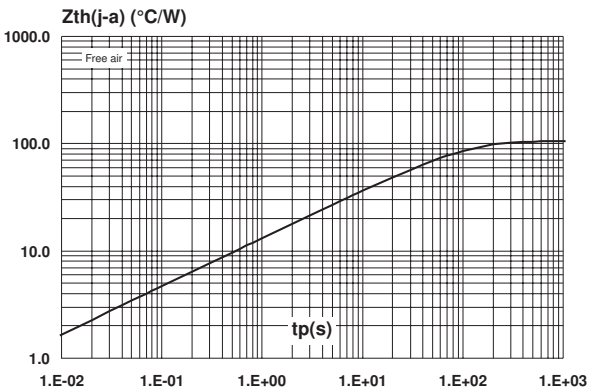


Fig. 5: Thermal resistance junction to ambient versus copper surface under each lead.

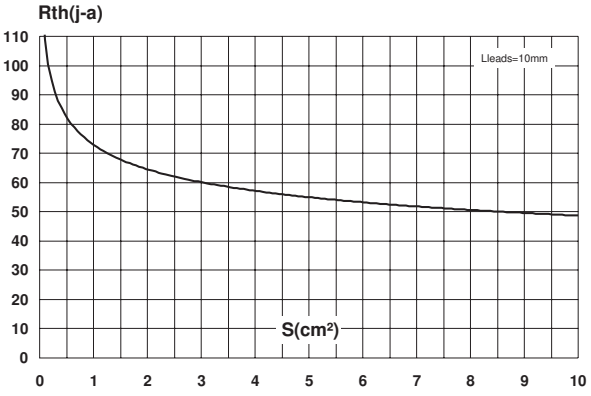


Fig. 6-1: Reverse leakage current versus reverse voltage applied (typical values, for Transil).

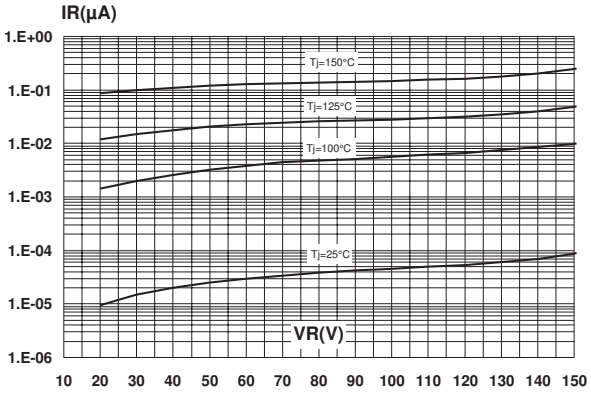


Fig. 6-2: Reverse leakage current versus reverse voltage applied (typical values, for diode).

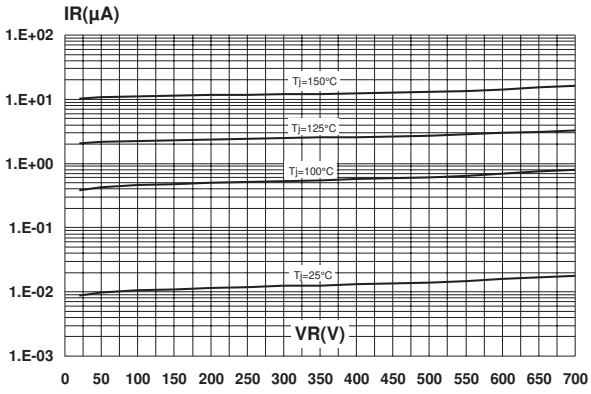


Fig. 7: Transient peak forward voltage versus d_{IF}/dt (90% confidence).

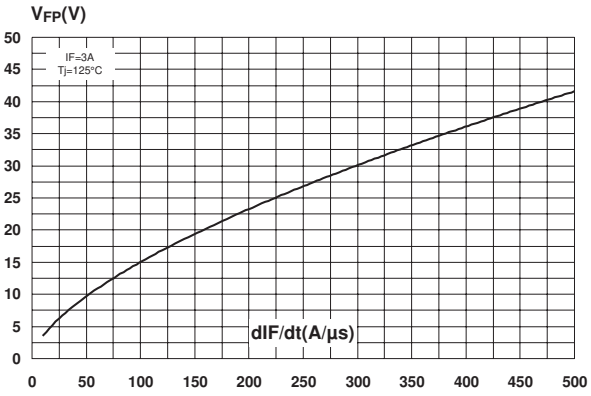


Fig. 8: Clamping voltage versus peak pulse current (maximum values).

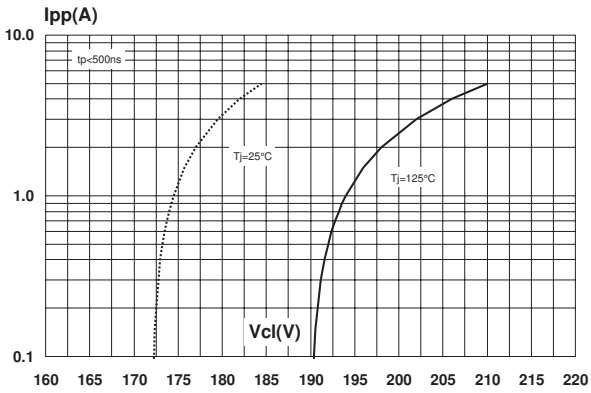
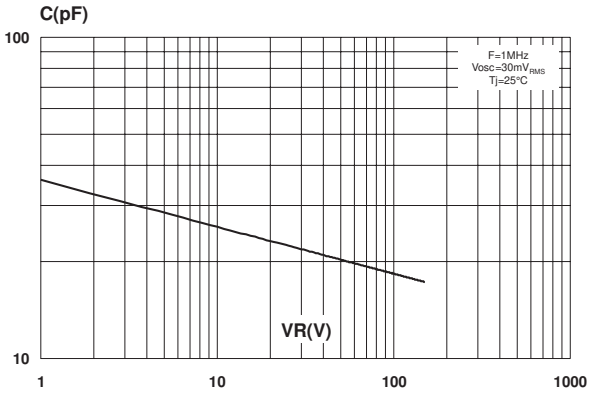
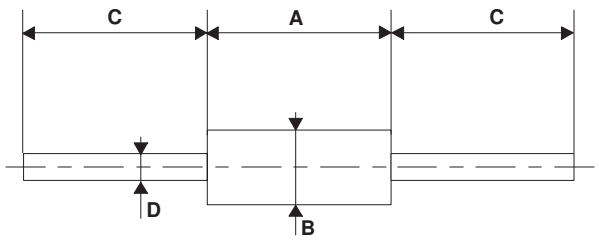


Fig. 9: Junction capacitance versus reverse voltage applied on clamping characteristic (typical values).



PACKAGE MECHANICAL DATA

DO-15



REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	6.05	6.75	0.238	0.266
B	2.95	3.53	0.116	0.139
C	26	31	1.024	1.220
D	0.71	0.88	0.028	0.035

Ordering type	Marking	Package	Weight	Base qty	Delivery mode
PKC136	Partnumber Diode cathode ring	DO-15	0.4g	1000	Ammopack
PKC136-RL	Partnumber Diode cathode ring	DO-15	0.4g	6000	Tape and reel