

**Major Specifications for – Procurement of Rad Hard components, fabrication and Screening of Rad Hard HMC DC-DC Converter Type-1A(28V)**

<b>Specification for Type 1A(28V)</b>	
<b>Specification</b>	<b>Value</b>
Input Voltage Range	24V to 45V DC
No. of DC Output Voltages	2
Main Output Voltage	5.1V $\pm$ 0.2V
Main Output current	1.2A (max), 1A (nom)
Aux Output Voltage	5.1V $\pm$ 0.2V
Aux Output current	0.3A(max), 0.25A (nom)
Line regulation	$\leq \pm 0.25\%$
Load Regulation	$\pm 0.5\%$
Ripple	30 mVpp(Main), 30 mVpp(Aux)
Spike	100mVpp(Main), 50mVpp(Aux)
Insulation @50V	>1000 M $\Omega$
Efficiency at rated load	>58%
Over Current Limit	>110% Max Load
Substrate Details	No Of Layers: 2  Substrate:1 – 1.26" x 1.03" x 0.025"  Substrate:2 – 0.18" x 0.36" x 0.025"
HMC Size including pins and flange	2" x 1.18" x 0.43"
Package material	Kovar
Component List	As per Annexure-1
Mechanical Drawing	As per Annexure-2

**Annexures 1 – Radhard HMC DC-DC Converter  
Type-1A (28V) Radhard ‘s’ Components List**

Sl. No.	Component Type	Description	Value	Part Number	Make	Qty./HMC
1	LD20	Capacitor	10uF, 100V	LD201C106KBB6A	AVX	3
2	0402	Capacitor	47pF, 100V	M3253502E1B470FZTB	KEMET	1
3	0402	Capacitor	220pF, 50V	M3253502E1A221FZTB	KEMET	2
4	0603	Capacitor	270pF, 100V	M3253503E1B271FRTB	KEMET	1
5	0402	Capacitor	680pF, 50V	M3253502E1A681FZTB	KEMET	2
6	0603	Capacitor	3.3nF, 100V	300904102332KE	AVX	1
7	0603	Capacitor	10nF, 100V	300904102103KE	AVX	1
8	0603	Capacitor	15nF, 100V	300904102153KE	AVX	7
9	0603	Capacitor	100nF, 25V	300904102104KA	AVX	2
10	0805	Capacitor	1uF, 10V	M3253504E2X105KRTB	KEMET	1
11	CWR29_B	Capacitor	1uF, 25V	CWR29KC105KCBC	AVX	1
12	CWR29_B	Capacitor	4.7uF, 15V	CWR29HC475KCBC	AVX	2
13	CWR29_B	Capacitor	10uF, 10V	CWR29FC106KCBC	AVX	2
14	CWR29_F	Capacitor	47uF, 10V	CWR29FC476KCFC	AVX	2
15	CWR29_G	Capacitor	68uF, 15V	CWR29HC686KCGC	AVX	2
16	Diode	Diode Die	150V, 2.5A	JANKC1N5806	MICROSEMI/ EQU	3
17	Diode	Diode Die	100V, 0.3A	JANKC1N6642	MICROSEMI/ EQU	4
18	Diode	Diode Die	40V, 3A	JANKC1N5822	MICROSEMI/ EQU	2
19	Zener	Diode Die	12V, 30mA	JANKC1N759A/ JANKC1N6326	MICROSEMI/ EQU	2
20	Transistor	Transistor Die	140V, 1A	JANKC2N3700	SEMICOA/ EQU	2
21	Transistor	Transistor Die	60V, 0.6A	JANKC2N2907A	SEMICOA/ EQU	1
22	MOSFET	MOSFET Die	200V, 18A	Chip L5462A(ES)	INFINEON	1
23	PWM	PWM IC Die	ISL78845	ISL78845A (5962R0724908V9A)	INTERSIL	1
24	LDO	LDO Die	Vin < 20V, Io < 1.5A	TPS7A4501 (5962R1222403V9A)	TI	2
25	Core	Magnetic Core	YW40601TC	YW40601TC	MAGNETICS	3
26	Core	Magnetic Core	0R41308EC	0R41308EC	MAGNETICS	2
27	Core	Magnetic Core	C055137-A2	C055137-A2	MAGNETICS	3
28	Substrate	HMC Substrate	Drilled Substrate		96% Alumina substrate (Al2O3), 25mil thickness	2
29	Package & lid	HMC Package & Lid	Gold plated Kovar 7-Pin & Stepped lid		Technotron/ EQU (Drawing number A10/18 & Rev:02) Hirel/ EQU (Drawing number A11/18 & Rev:01)	1 set
30	Cu Wire	Cu Wire	31 AWG Enamelled Coated (Polyimide)		Elektrisola/ EQU	-

## Annexure-2

### Type-1A (HDV280505DSB) Mechanical Diagram



