

PRASAR BHARATI
(Broadcasting Corporation of India)
OFFICE OF THE ADDITIONAL DIRECTOR GENERAL (ENGG) (SOUTH ZONE)
ALL INDIA RADIO & DOORDARSHAN
Swamy Sivananda Salai, Chennai - 600 005

No. CE (SZ)/PUR-I/34/ SPFM/2011-12

Date: 18.08.2011

Sub.: Enquiry for Supply of **Spares (Power Transistors/Power Resitors) for TV Transmitters** - Reg.

Dear Sir,

This office is interested in the purchase of the following **Stores/Works** as specification given below/attached and invites your quotation.

S.No.	Description	Quantity
1.	Transistor BLF 278(Specifications Enclosed)	45 Nos.
2.	Transistor MRF 182 (Specification Enclosed)	10 Nos.
3.	High Power Resistor SOT 227 150 ohms 250 Watts Model TFP-MHP 300 LF Y 150R F (Specifications Enclosed)	50 Nos.

1. CONSIGNEE

Delivery at AE (Main Godown), Office of The Additional Director General (Engg) (SZ), All India Radio & Television, Swami Sivananda Salai, Chennai-600 005.
(Main Godown Timings: 10.00 Hrs to 16.30 Hrs).

2. The quotation should specifically mention **Make & Type of the items**, delivery date, terms and condition of supply. The prices should be firm and given as under.
(a) The 'Unit' Price should be for the Unit as indicated in the tender enquiry.
(b) Prices quoted should be for F.O.R. Station of destination in India and Inclusive of charges as packing customs, etc., wherever applicable.
3. In case of Quotation of F.O.R Station of dispatch basis, the purchaser will not pay separately transit insurance and the supplier will be responsible until the stores arrive in good condition at the destination. Tender/quotation in which transit insurance has been specified as an additional item of expenditure is liable to be ignored.
4. **SECURITY DEPOSIT:** the successful Tenderer shall furnish the Security Deposit within 2 weeks after placement of order at the rate of **10% of the Order Value**. The security deposit shall be furnished in the form of Demand Draft / Bank Guarantee drawn in favour of the Additional Director General (Engg) (SZ), AIR&DD, Chennai-5. The Security Deposit will be returned in full on completion of successful Guarantee/Warranty Period.
5. Printed terms and conditions of tendering firms will not be considered as forming parts of their tender.
6. **GUARANTEE PERIOD:** One year from the date of delivery of Equipments.
7. **DELIVERY OF EQUIPMENTS:** The delivery of the entire Equipment at AIR's site shall be completed within one month from the date of placement of order. Delivery period may also be quoted separately.

8. **SALES TAX:** - Sales Tax leviable and intended to be claimed from the purchaser should be distinctly shown along with prices quoted. Where this is not done no claim for Sales Tax will be admitted at any later stage and on any ground whatsoever.
9. **TERMS OF PAYMENT:** - 100 % Payment on receipt of stores in good working condition at the destination.
10. The quotation should be sent in a sealed cover addressed to the undersigned, by name, so as to reach on or before **06.09.2011** 12.30 P.M.
THE COVER SHOULD BE SUPERSCRIBED WITH THE FOLLOWING:
 - a. **Material for which quotations are enclosed.**
 - b. **Reference to letter of enquiry.**
 - c. **Due date of opening quotation.**
11. The Quotations will be opened in this office at 3.00 P.M. on **06.09.2011** in the presence of tenderers or their agents such as they may choose to attend.
12. **QUOTATIONS NOT PROPERLY SUPERSCRIBED WILL NOT BE CONSIDERED.**
13. The quotations submitted shall remain open for acceptance for a period of **90 (Ninety) days** from the date of opening of the Tender. If any Tenderer/ Suppliers withdraws his Tender/Quotation before the said period or makes any modifications in the Terms & Conditions on the Tender/Quotation which are not acceptable to the Department, then the Government shall, without prejudice to any other right or remedy, be at the liberty to forfeit 50% of the Earnest Money as aforesaid.
14. Both your **PAN - Permanent Income Tax Account Number** and Income Tax Circle & your **TIN - Tax Identification Number** and the Tax circle should be definitely indicated in your quotation.
15. In case of supply of any Specific or Manufacturer item, the Manufacturer's Test Certificate should be enclosed with the supply.
16. **RIGHT OF ACCEPTANCE:** The undersigned reserves the right to reject the lowest tender or all the tenders without assigning any reasons whatsoever. Further, the undersigned reserves him self the right for decreasing the quantity of material tendered depending upon the actual requirements. The unit rate quoted on the tender shall be applicable for the quantity for which order is placed. All Quotations/Tenders in which any of the prescribed conditions are not fulfilled or are incomplete in any respect are liable to be rejected. The competent authority on behalf of President of India reserve himself the right of accepting the whole or any part of the Tender shall be bound to perform the same at the rate quoted.
17. Canvassing whether directly or indirectly, in connection with Tender/quotation is strictly prohibited and the Tender/quotation submitted by the Contractors / suppliers who resort to canvassing will be liable to rejection.
18. The undersigned also reserves the right to place **Repeat Order** for 100% or less quantity for which the quotation has been originally invited/order placed.
19. **LANGUAGE / UNITS:** All information supplied by the Tenderer & all markings, notes, designation on the drawings & associated write-ups shall be in "**English language**" only. All dimensions, units on drawings, all references to weights, measures & quantities shall be in MKS.
20. In case this is second enquiry, your Quotation in response to the first enquiry should be presumed to be valid up to 120 days from the last date mentioned in para 11 above unless we hear from you.
21. Tenderer should sign on both page of specification and enclose with the quotation.

Web Site: <http://www.cesairdd.org.in/tenders.html/>
<http://www.allindiaradio.org/tender.html>
<http://tenders.gov.in>

(C.MOOKAN)
Director (Engineering)
For Addl. Director General (E) (SZ)

SPECIFICATIONS

1. RF POWER FIELD EFFECT TRANSISTOR MRF 182

- High Gain Rugged Device
- Broadband performance from HF to 1GHz
- Bottom side Source Eliminates DC Isolators, Reducing Common Mode Inductances

MAXIMUM RATINGS

Rating	Symbol	Value	Unit		
Drain- Source Voltage	VDSS	65	Vdc		
Gate-Source Voltage	VGS	±20	Vdc		
Total Device Dissipation @ Tc = 70°C Derate above 70°C	PD	74 0.57	W W/°C		
Storage Temperature Range	Tstg	-65 to +150	°C		
Operating Junction Temperature	Tj	200	°C		

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit		
Thermal Resistance, Junction to case	R θ JC	1.75	°C/W		

ELECTRICAL CHARACTERISTICS (Tc=25°C unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
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OFF CHARACTERISTICS

Drain-Source Breakdown Voltage (VGS=0.1ID=1.0(μAdc))	V(BR)DSS	65	-	-	Vdc
Zero Gate Voltage Drain Current (VDS=28V, VGS=0)	IDSS	-	-	1	μAdc
Gate-Source Leakage Current (VGS=20V, VDS=0)	IGSS	-	-	1	μAdc

ELECTRICAL CHARACTERISTICS - Continued (Tc=25°C unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
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ON CHARACTERISTICS

Gate Threshold Voltage (VDS=10V, ID=100 μA)	VGS(th)	2	3	4	Vdc
Gate Quiescent Voltage (VDS=28V, ID=50 mA)	VGS(Q)	3	4	5	Vdc
Drain-Source On-Voltage	VDS(on)	-	0.9	1.2	Vdc

(VGS=10 V, ID=3A)					
Forward Trans conductance (VDS=10V, ID=3A)	gfs	1.6	1.8	-	S

DYNAMIC CHARACTERISTICS

Input Capacitance (VDS=28V, VGS=0.f=1 MHZ)	Ciss	-	56	-	pF
Output Capacitance (VDS=28V, VGS=0.f=1 MHZ)	Coss	-	28	-	pF
Reverse Transfer Capacitance (VDS=28V, VGS=0.f = 1 MHZ)	Crss	-	2.5	-	pF

FUNCTIONAL CHARACTERISTICS

Common Source Power Gain (VDD=28 Vdc, Pout=30W, IDQ=50 mA, f=945 MHZ)	Gps	11	14	-	dB
Drain Efficiency (VDD=28 Vdc, P out=30W, IDQ=50Ma, F=945 MHZ)	η	50	60	-	%
Load Mismatch (VDD=28 Vdc, Pout=30W, IDQ=50 mA, f=945 MHZ Load VSWR 5:1 at All Phase)	ψ	No Degradation in Output Power			
Series Equivalent Input Impedance (VDD=28 Vdc, Pout=30W, IDQ=50 mA, f=960 MHZ)	Zin	-	0.81 + j1.6	-	Ohms
Series Equivalent Output Impedance (VDD=28 Vdc, Pout=30W, IDQ=50 mA, f=960 MHZ)	Zout	-	2.15- j1.7	-	ohms

2. VHF POWER MOSFET BLF 278

DESCRIPTION:

The ASI BLF278 is a Dual common Source N-Channel Enhancement-Mode MOSFET

RF Power Transistor, Designed for 175 MHz, 300 W Transmitter and Amplifier Applications.

I_D	40A
V_{DSS}	125V
V_{GS}	±40V
P_{DISS}	500W @T _c =25°C
T_J	-65°C to +200°C
T_{STG}	-65°C to +150°C
θ_{JC}	0.35°C/W

CHARACTERISTICS T_c=25°C

SYMBOL	TEST CONDITIONS	MINIMUM	TYPICAL	MAXIMUM	UNITS
B_VD_{SS}	I_D=100 ma	125			V
I_{DSS}	V_{Ds}=50V V_{Gs}=0V			5.0	mA
I_{GSS}	V_{Ds}=0V V_{Gs}=20V			1.0	μA
V_{Gs(th)}	I_D=100 mA V_{Ds}=10V	1.0		5.0	V
V_{Ds(on)}	I_D=10A V_{Gs}=10V			5	V
G_{fs}	I_D=5.0 V_{Ds}=10V	5.0			Mhos
C_{iss} C_{oss} C_{rss}	V_{Ds}=50V V_{Gs}=0V F=1.0 MHZ		350 250 15		pF
G_{ps}	V_{DD}=50V I_{DD}=500mA P_{out} = 300W	14	16		dB
η	F=175 MHZ	50	55		%
ψ	VSWR=5:1 AT ALL PHASE ANGLES	NO DEGRADATION IN OUTPUT POWER			

3.HIGH POWER RESISTOR SOT 227

Model TFP-MHP 300 LF Y 150R F

- ; Pb-free RoHs compliant SOT227 package
- ; High Impulse Power capability
- ; Non-inductive film technology
- ; Superior vibration handling
- ; UL94V0

Environmental Data

Environmental Test	Test Method	Specification
Load Life	1000 hours 25°C 90 Minutes on, 30 minutes off.	$\Delta R \pm 1.0\% + 0.05\Omega$
Humidity	1000 hours, 70°C, 90 to 95% RH, 0.1W DC	$\Delta R \pm 1.0\% + 0.05\Omega$
Temperature Cycle	20 cycles, -55° 30 minutes, + 120°C 30 minutes high	$\Delta R \pm 1.0\% + 0.05\Omega$
Short Time Overload	2.5 X Rated Power, 2.5 seconds. 25° C with Heat Sink	$\Delta R \pm 25\% + 0.05\Omega$
Vibration	IEC60068-2-6	$\Delta R \pm 25\% + 0.05\Omega$
Withstanding Voltage	60 seconds	4000VAC
Insulation Resistance	Between terminals and flange	>1000 Meg Ω

ELECTRICAL DATA

Model	MHP 300 LF	
Power Rating	300W	
Schematic	Y	
Resistance	150 Ω	
Thermal Resistance R thj-c	0.23°C /W	
Weight	30g	
Operating Temperature Range	-55°C to 120°C	
Working Voltage	\sqrt{PxR} not to exceed 1.0KV	
Nominal Values	E24	
Resistance Tolerance	$\pm 1\% \pm 5\%$	
TCR	R 1.0 Ω	± 250 ppm/°C
	R 1.0 Ω	± 100 ppm/°C