

# NAG Fortran Library Routine Document

## F06RPF

**Note:** before using this routine, please read the Users' Note for your implementation to check the interpretation of *bold italicised* terms and other implementation-dependent details.

### 1 Purpose

F06RPF returns, via the function name, the value of the 1-norm, the  $\infty$ -norm, the Frobenius norm, or the maximum absolute value of the elements of a real  $n$  by  $n$  symmetric tridiagonal matrix  $A$ .

### 2 Specification

```

double precision FUNCTION F06RPF (NORM, N, D, E)
  INTEGER                                N
  double precision                    D(*), E(*)
  CHARACTER*1                            NORM

```

### 3 Description

None.

### 4 References

None.

### 5 Parameters

- 1: NORM – CHARACTER\*1 *Input*  
*On entry:* specifies the value to be returned:  
 if NORM = '1' or 'O', the 1-norm;  
 if NORM = 'I', the  $\infty$ -norm;  
 if NORM = 'F' or 'E', the Frobenius (or Euclidean) norm;  
 if NORM = 'M', the value  $\max_{i,j} |a_{ij}|$  (not a norm).  
*Constraint:* NORM = '1', 'O', 'I', 'F', 'E' or 'M'.
- 2: N – INTEGER *Input*  
*On entry:*  $n$ , the order of the matrix  $A$ .  
*Constraint:*  $N \geq 0$ .
- 3: D(\*) – **double precision** array *Input*  
**Note:** the dimension of the array D must be at least  $\max(1, N)$ .  
*On entry:* the  $n$  diagonal elements of the tridiagonal matrix  $A$ .
- 4: E(\*) – **double precision** array *Input*  
**Note:** the dimension of the array E must be at least  $\max(1, N - 1)$ .  
*On entry:* the  $(n - 1)$  sub-diagonal or super-diagonal elements of the tridiagonal matrix  $A$ .

## 6 Error Indicators and Warnings

None.

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