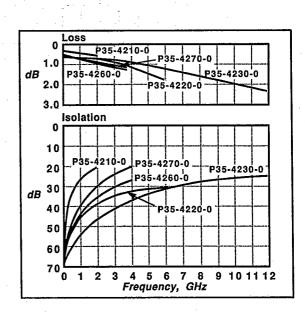


## **Three Five Product Information**

T-51-11

# **GaAs MMIC Switches**

Plessey now offer an extensive range of RF switch chip devices based on GaAs MESFET technology. These switch products span the frequency range up to 12GHz and offer a variety of switching functions. To provide the confidence in the basic MESFET device as used in this novel application of rf switching, an extensive product qualification programme was carried out on the basic rf switch cell, the P35-4210, an SPDT switch usable to 2 GHz frequencies. This report summarises the tests undertaken and the results obtained on samples of devices taken from pilot production lots.



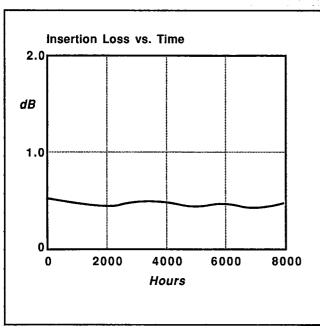
# Summary Qualification Report

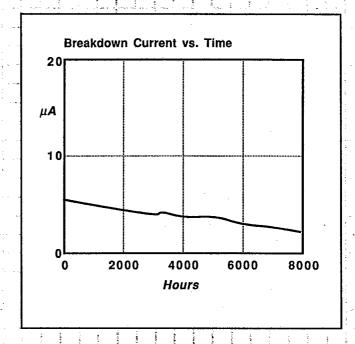
### Qualification Tests Based on MILSTD 883C/BS9300

Sub Group	Qualification Tests	Conditions
A & B	(1) DC Tests (2) RF Tests	Internal production test specification
С	<ul> <li>(1) RF Testing</li> <li>(2) Rapid change of temp</li> <li>(3) Solderability</li> <li>(4) 1000 hour endurance test</li> </ul>	@ spot frequencies up to 1GHz $T_{amb} = -65^{\circ}\text{C to } 150^{\circ}\text{C}$ $T_{amb} = 150^{\circ}\text{C, VG} = -12\text{V}$
D	<ul> <li>(1) Maximum RF</li> <li>(2) RF @ temperature</li> <li>(3) Vibration</li> <li>(4) Acceleration</li> <li>(5) Damp heat</li> <li>(6) 8000 hour endurance test</li> </ul>	1W CW @ 1GHz and 0.3W CW @ 10MHz $T_{amb} = -55^{\circ}\text{C}$ and $+150^{\circ}\text{C}$ 150 to 2000 Hz, $196\text{ms}^{-2}$ 196 Kms <sup>-2</sup> + 25°C/ + 55°C/95%RH 28 cycles $T_{amb} = 150^{\circ}\text{C}$ , VG = $-12\text{V}$

Symbol	Parameters	Maximum allowable delta
I <sub>DSS</sub> I <sub>P</sub> I <sub>B</sub> I <sub>F</sub>	Channel current Pinch off current Breakdown current Forward current	±10% ±20% or 100μA, whichever greatest ±20% or 100μA, whichever greatest ±10%

### Typical Results





39 off devices were selected from 3 off consecutive production batches and subject to the above qualification tests.

The total number of accumulated device test hours on endurance test was 275,000.



### Plessey Research & Technology

Caswell, Towcester, Northamptonshire, NN12 8EQ, UK Telephone: (0327) 50581 Telex: 31572

Facsimile: (0327) 53410

The Plessey Company Limited 1990

Registered Trade Mark of The Pleasey Company Limited

### **North American Office**

4350 La Jolla Village Drive, Suite 300, San Diego, California 92122, USA Telephone: 619 546 4457

Facsimile: 619 558 9221

Publication No. PRT-0031 Issue 1 1-90

This publication is issued to provide outline information only and (unless specifically agreed to the contrary by the Company in writing) is not to be copied or to form part of any order or contract or to be regarded as a representation to the products or services concerned. Any applications of products sh own in this publication are for illustration purposes only and do not give or imply any licences or rights to use the information for any purposes whatsoever. It is the responsibility of any person who wishes to use the application information to obtain any necessary licence for such use. We reserve the right to alter without notice the specification, design, price or conditions of supply of any product or service