

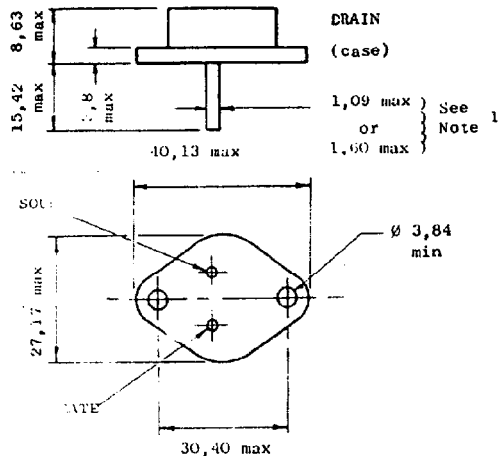
BRITISH STANDARDS INSTITUTION
2 PARK STREET
LONDON W1A 2SB

Specification available from:
AS SHOWN IN PD 9002, CECC 00200
AND
INTERNATIONAL RECTIFIER CO (GB) LTD
HURST GREEN, OXTEY,
SURREY RH8 9BB.
TEL: 08833 - 3215 TELEX: 95219

ELECTRONIC COMPONENTS OF ASSESSED
QUALITY IN ACCORDANCE WITH:
BS CECC 50 000 - 1981 ISSUE 3

1. MECHANICAL DESCRIPTION

All Dimensions in millimeters



OUTLINES

BS 3934 - SO 127B with SB2 - 2 base NOTE 1
IRF 151-2 - CL1B with B18 base 1,09 for IRF350,
353, 450, 453
TERMINAL CONNECTIONS - As outline above 1,6 for IRF150,
MARKING - As per Type Numbers above 151, 250, 253

BS CECC 50 012 - 014

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DETAIL SPECIFICATION FOR:

SINGLE GATE FIELD EFFECT TRANSISTORS
N CHANNEL - ENHANCED GATE

TYPE NUMBERS (SIMILAR TO)

IRF 150, 153 (2N6764, 2N6765)
IRF 250, 253 (2N6766, 2N6767)
IRF 350, 353 (2N6768, 2N6769)
IRF 450, 453 (2N6770, 2N6769)

ORDERING INFORMATION

See Clause 7 of this Document

2. SHORT DESCRIPTION

Semiconductor material: Silicon
Encapsulation: Glass/ Metal Hermetic
Application: a) Low frequency
amplification
b) Switching

Power Case rated: 150W @ T_C = 25°C

For Concise Data see Page 2 of this Document

3. LEVEL OF QUALITY ASSESSMENT

LEVEL E Plus additional tests

WARNING: THESE DEVICES ARE STATIC SENSITIVE



CAUTION
STATIC SENSITIVE
DEVICES

NOT TO BE HANDLED
BY UNAUTHORISED
PERSONNEL

4. LIMITING VALUES (Absolute maximum rating system)

These apply over the operating temperature range unless otherwise stated.

BS CECC 50 012		Symbol	Value		Unit
			min	max	
4.1	Operating case temperature	T _{case}	-55	+150	°C
4.2	Storage temperature	T _{stg}	-55	+150	°C
4.3	Drain - Source voltage at V _{GS} = 0	V _{DSS}	-	Table 1	V
4.4	Reverse gate- source voltage at V _{DS} = 0	V _{GSR}	-	- 20	V
4.5	Gate-drain voltage with source open circuit	V _{GDO}	-	+ 20	V
4.7	Continuous Drain current at temperature from -55 to + 90°C, then derate linearly to + 150°C	I _D	-	Table 1	A
4.7.1	Pulsed drain current	I _{DM}	-	Table 1	A
4.8	Power dissipation (See Power V _S Temperature Curve Clause 9)	P _{tot}	-	150	W

Table 1 LIMITING VALUES

TYPE IRF.....	150	153	250	253	350	353	450	453
V _{DSS} max (V)	100	60	200	150	400	350	500	450
I _D max (A)	40	33	30	25	15	13	13	12
I _{DM} max (A)	160	132	120	100	60	52	52	48

See relevant Qualified Product List for the availability of components qualified under this detail Specification

CONCISE DATA

Part Numbers	V _{DSS} Drain Source Voltage (Volts)	r _{DS(ON)} On-State Resistance (Ohms)	I _D Continuous Drain Current (Amps) @ 25°C Case	I _{DM} Pulsed Drain Current (Amps)	P _{tot} Max. Power Dissipation (Watts)	S _{21s} Minimum Transconductance (Siemens)	C _{iss} Typical Input Capacitance (pf)
IRF150	100	0,055	40,0	160,0	150	6,6	2000
IRF153	60	0,08	33,0	132,0			
IRF250	200	0,085	30,0	120,0	150	8,0	2000
IRF253	150	0,120	25,0	100,0			
IRF350	400	0,3	15,0	60,0	150	5,0	2000
IRF353	350	0,4	13,0	52,0			
IRF450	500	0,4	13,0	52,0	150	6,0	2000
IRF453	450	0,5	12,0	48,0			

5. ELECTRICAL CHARACTERISTICS (See clause 8 of this document for Inspection Requirements - Group A to C)

In the following table characteristics marked + in the "Measured" column, are measured in Group A or Subgroup C2.

BS CECC	Measured	Characteristics and conditions at $T_{case} = 25^{\circ}C$, unless otherwise stated.	Symbol	Value		Unit
				min	max	
SECT 1						
5.1	+	Leakage current with drain. short circuit to source at $V_{GSR} = 20v$	$I_{GSS(1)}$	-	100	nA
5.2	+	Leakage current with drain short circuited to source at $V_{GSR} = 15v$ $T_{case} = 125^{\circ}C$	$I_{GSS(2)}$	-	200	nA
5.5	+	Gate - source threshold voltage at $V_{DS} = 20$ $I_D = 250\mu A$	$V_{GS(TO)}$	2,0	4,0	v
5.6	+	On state Drain Current at $V_{GS} = 1.7v$ $V_{DS} = 10v$	I_D	See Table II		A
5.7	+	Input Capacitance See below. Sect 3 Clause 5.9	C_{11SS}	See Table III		pF
5.9	+	Short circuit forward transconductance at $V_{DS} =$ $I_D =$ See Table IV	g_{21s}	See Table IV		S
Using circuit shown in Appendix I or Automatic Test Equipment e.g. IMPACT II System						

5. ELECTRICAL CHARACTERISTICS

(Continued)

BS CECC	Measured	Characteristics and conditions at $T_{\text{case}} = 25^{\circ}\text{C}$, unless otherwise stated.	Symbol	Value		Unit
				min	max	
<u>SEC 3</u>						
5.7	+	For all devices $V_{\text{DSS}} = \text{See Table I}$ $V_{\text{GS}} = 0\text{V}$	I_{DSX}		250	μA
5.8	+	Drain-source on-state voltage at $I_{\text{D}} = \text{See Table VI}$ $V_{\text{GS}} = 10\text{V}$	$V_{\text{DS(on)}}$	See Table VI		V
5.9	+	Small signal, common source, capacitance at $V_{\text{DS}} = 25\text{V}$ $V_{\text{GS}} = 0\text{V}$ Input Capacitance Output Capacitance Reverse Transfer Capacitance	$C_{11\text{ss}}$ $C_{22\text{ss}}$ $C_{12\text{ss}}$	See Table III		pF
5.10	+	Switching times at $V_{\text{GS(ON)}} = 10\text{V}$ $I_{\text{D}} = \text{See Table V}$ Using the circuit shown in Appendix II Turn on delay time Rise time Fall time Turn off delay time	$t_{\text{d(on)}}$ t_{r} t_{f} $t_{\text{d(off)}}$	See Table V		ns

5. ELECTRICAL CHARACTERISTICS (continued)

BS CECC 50 012	Measured	Characteristics and conditions at $T_{\text{case}} = 25^{\circ}\text{C}$, unless otherwise stated.	Symbol	Value		Unit
				min	max	
<u>SECT</u> <u>1 & 3</u>		Thermal resistance, junction to case (all types)	$R_{\text{th(j-case)}}$		0,83	K/W
<u>SECT 4</u> <u>5.6</u>	+	Drain-source on-state resistance at $I_D = \text{See Table VI}$ $V_{\text{GS}} = 10\text{V}$	$r_{\text{DS(on)}}$	See table VI		Ω

Page(s) 6 of this document was (were)
missing upon receipt. The document has been reordered
and will be refilmed when received.

INFORMATION HANDLING SERVICES

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