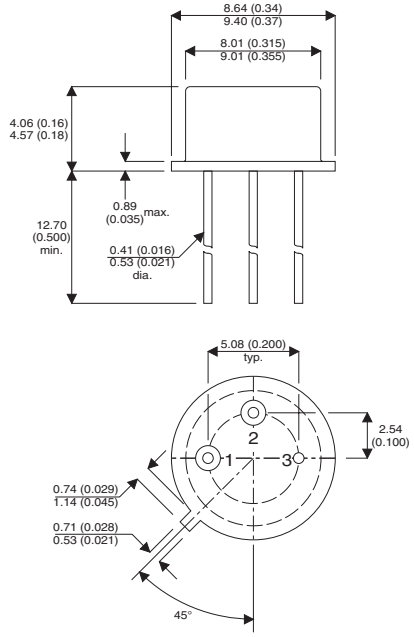
2N6794

MECHANICAL DATA

Dimensions in mm (inches)



TO39 – Package (TO-205AF)

Underside View

Pin 1 – Source Pin 2 – Gate Pin 3 – Drain

N–CHANNEL ENHANCEMENT MODE POWER MOSFET

BV_{DSS}	500V
$I_{D(cont)}$	1.5
$R_{DS(on)}$	3.0Ω

FEATURES

- **AVALANCHE ENERGY RATED**
- **HERMETICALLY SEALED**
- **DYNAMIC dv/dt RATING**
- **SIMPLE DRIVE REQUIREMENTS**

ABSOLUTE MAXIMUM RATINGS (T_{case} = 25°C unless otherwise stated)

V_{GS}	Gate – Source Voltage		±20V
I_D	Continuous Drain Current	(V_{GS} = 10V , T_{case} = 25°C)	1.5A
I_D	Continuous Drain Current	(V_{GS} = 10V , T_{case} = 100°C)	1A
I_{DM}	Pulsed Drain Current [1]		6.5A
P_D	Power Dissipation @ T_{case} = 25°C		20W
	Linear Derating Factor		0.16W/°C
E_{AS}	Single Pulse Avalanche Energy [2]		0.11mJ
dv/dt	Peak Diode Recovery [3]		3.5V/ns
T_J , T_{stg}	Operating and Storage Temperature Range		–55 to 150°C
$R_{\theta JC}$	Thermal Resistance Junction to Case		6.25°C/W
$R_{\theta JA}$	Thermal Resistance Junction-to-Ambient		175°C/W

Notes

1) Pulse Test: Pulse Width ≤ 300μs, δ ≤ 2%

2) @ V_{DD} = 50V , L ≥ 0.100mH , R_G = 25Ω , Peak I_L = 1.5A , Starting T_J = 25°C

3) @ I_{SD} ≤ 1.5A , di/dt ≤ 50A/μs , V_{DD} ≤ BV_{DSS} , T_J ≤ 150°C , SUGGESTED R_G = 7.5Ω

Semelab plc. Telephone +44(0)1455 556565. Fax +44(0)1455 552612.
E-mail: sales@semelab.co.uk Website: http://www.semelab.co.uk

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SEME LAB

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ELECTRICAL CHARACTERISTICS (T_{amb} = 25°C unless otherwise stated)

	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
	STATIC ELECTRICAL RATINGS						
BV_{DSS}	Drain – Source Breakdown Voltage	V_{GS} = 0	I_D = 1mA	500			V
$\frac{\Delta BV_{DSS}}{\Delta T_J}$	Temperature Coefficient of Breakdown Voltage	Reference to 25°C I_D = 1mA			0.43		V/°C
$R_{DS(on)}$	Static Drain – Source On–State Resistance	V_{GS} = 10V	I_D = 1A			3	Ω
		V_{GS} = 10V	I_D = 1.5A			3.45	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}$	I_D = 250µA	2		4	V
g_{fs}	Forward Transconductance	V_{DS} =5V	I_{DS} = 1A	1		3	S(℧)
I_{DSS}	Zero Gate Voltage Drain Current	V_{GS} = 0	$V_{DS} = 0.8BV_{DSS}$			25	µA
			T_J = 125°C			250	
I_{GSS}	Forward Gate – Source Leakage	V_{GS} = 20V				100	nA
I_{GSS}	Reverse Gate – Source Leakage	V_{GS} = –20V				–100	
	DYNAMIC CHARACTERISTICS						
C_{iss}	Input Capacitance	V_{GS} = 0			350		pF
C_{oss}	Output Capacitance	V_{DS} = 25V			80		
C_{rss}	Reverse Transfer Capacitance	f = 1MHz			35		
Q_g	Total Gate Charge	V_{GS} = 10V $V_{DS} = 0.5BV_{DS}$	I_D = 1.5A	7.3		16.7	nC
Q_{gs}	Gate – Source Charge	I_D =1.5A		0.1		3	nC
Q_{gd}	Gate – Drain (“Miller”) Charge	$V_{DS} = 0.5BV_{DS}$		3.7		8.7	
$t_{d(on)}$	Turn–On Delay Time	V_{DD} = 250V I_D = 1.5A R_G = 7.5Ω				40	ns
t_r	Rise Time					30	
$t_{d(off)}$	Turn–Off Delay Time					60	
t_f	Fall Time					30	
	SOURCE – DRAIN DIODE CHARACTERISTICS						
I_S	Continuous Source Current					1.5	A
I_{SM}	Pulse Source Current [2]					6.5	
V_{SD}	Diode Forward Voltage	I_S = 1.5A V_{GS} = 0	T_J = 25°C			1.2	V
t_{rr}	Reverse Recovery Time	I_F = 1.5A	T_J = 25°C			900	ns
Q_{rr}	Reverse Recovery Charge	$d_i / d_t \leq 100A/\mu s$	$V_{DD} \leq 50V$			5.9	µC
t_{on}	Forward Turn–On Time				Negligible		
	PACKAGE CHARACTERISTICS						
L_D	Internal Drain Inductance (from centre of drain pad to die)				5.0		nH
L_S	Internal Source Inductance (from centre of source pad to end of source bond wire)				15.0		

Notes

1) Pulse Test: Pulse Width ≤ 300µs, δ ≤ 2%

2) Repetitive Rating – Pulse width limited by maximum junction temperature.

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