

2N7224 / IRFM150

N- Channel Power Mosfet

V_{DSS} 100V

$I_{D(cont)}$ 34A

$R_{DS(on)}$ 0.070 Ω

Features

Repetitive Avalanche Rating

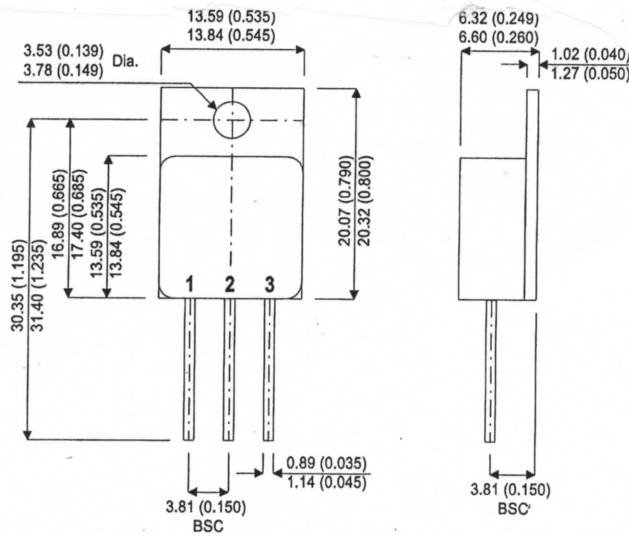
Alternative to TO3 Package

Ease Drive Requirements

Isolated and Hermetically Sealed

Simple Drive Requirements

Ease of Paralleling



TO-254AA – Package

Pin 1 – Drain

Pin 2 – Source

Pin 3 – Gate

ABSOLUTE MAXIMUM RATINGS ($T_{case} = 25^{\circ}C$ unless otherwise stated)

V_{GS}	Gate – Source Voltage	$\pm 20V$
I_D	Continuous Drain Current ($V_{GS} = 10V$, $T_{case} = 25^{\circ}C$)	34A
I_D	Continuous Drain Current ($V_{GS} = 10V$, $T_{case} = 100^{\circ}C$)	21A
I_{DM}	Pulsed Drain Current ¹	136A
P_D	Power Dissipation @ $T_{case} = 25^{\circ}C$	150W
	Linear Derating Factor	1.2W/ $^{\circ}C$
E_{AS}	Single Pulse Avalanche Energy ²	150mJ
dv/dt	Peak Diode Recovery ³	5.5V/ns
T_J, T_{stg}	Operating and Storage Temperature Range	-55 to $150^{\circ}C$
$R_{\theta JC}$	Thermal Resistance Junction to Case	0.83 $^{\circ}C/W$
$R_{\theta JCS}$	Thermal Resistance Case to Sink (Typical)	0.21 $^{\circ}C/W$
$R_{\theta JCA}$	Thermal Resistance Junction-to-Ambient	48 $^{\circ}C/W$

Notes

1) Pulse Test: Pulse Width $\leq 300\mu s$, $\delta \leq 2\%$

2) @ $V_{DD} = 25V$, $L \geq 200\mu H$, $R_G = 25\Omega$, Peak $I_L = 34A$, Starting $T_J = 25^{\circ}C$

3) @ $I_{SD} \leq 34A$, $di/dt \leq 70A/\mu s$, $V_{DD} \leq BV_{DSS}$, $T_J \leq 150^{\circ}C$, SUGGESTED $R_G = 2.35\Omega$

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	100		V
ΔBV _{DSS}	Temperature Coefficient of Breakdown Voltage	Reference to 25°C I _D = 1mA		0.13	V/°C
R _{DS(on)}	Static Drain – Source On–State Resistance	V _{GS} = 10V I _D = 21A V _{GS} = 10V I _D = 34A		0.070 0.081	Ω
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} I _D = 250μA	2	4	V
g _{fs}	Forward Transconductance	V _{DS} ≥ 15V I _{DS} = 21A	9		S(Ω)
I _{DSS}	Zero Gate Voltage Drain Current	V _{GS} = 0 V _{DS} = 0.8BV _{DSS} T _J = 125°C		25 250	μA
I _{GSS}	Forward Gate – Source Leakage	V _{GS} = 20V		100	nA
I _{GSS}	Reverse Gate – Source Leakage	V _{GS} = –20V		–100	nA
DYNAMIC CHARACTERISTICS					
C _{iss}	Input Capacitance	V _{GS} = 0		3700	pF
C _{oss}	Output Capacitance	V _{DS} = 25V		1100	
C _{rss}	Reverse Transfer Capacitance	f = 1MHz		200	
Q _g	Total Gate Charge	V _{GS} = 10V I _D = 34A V _{DS} = 0.5BV _{DS}	50	125	nC
Q _{gs}	Gate – Source Charge	I _D = 34A	8	22	nC
Q _{gd}	Gate – Drain (“Miller”) Charge	V _{DS} = 0.5BV _{DS}	15	65	
t _{d(on)}	Turn–On Delay Time	V _{DD} = 50V		35	ns
t _r	Rise Time	I _D = 34A		190	
t _{d(off)}	Turn–Off Delay Time	R _G = 2.35Ω		170	
t _f	Fall Time			130	
SOURCE – DRAIN DIODE CHARACTERISTICS					
I _S	Continuous Source Current			34	A
I _{SM}	Pulse Source Current ²			136	
V _{SD}	Diode Forward Voltage	I _S = 34A T _J = 25°C V _{GS} = 0		1.8	V
t _{rr}	Reverse Recovery Time	I _F = 34A T _J = 25°C		500	ns
Q _{rr}	Reverse Recovery Charge	d _i / d _t ≤ 100A/μs V _{DD} ≤ 50V		2.9	μC
t _{on}	Forward Turn–On Time		Negligible		
PACKAGE CHARACTERISTICS					
L _D	Internal Drain Inductance (from centre of drain pad to die)		8.7		nH
L _S	Internal Source Inductance (from centre of source pad to end of source bond wire)		8.7		