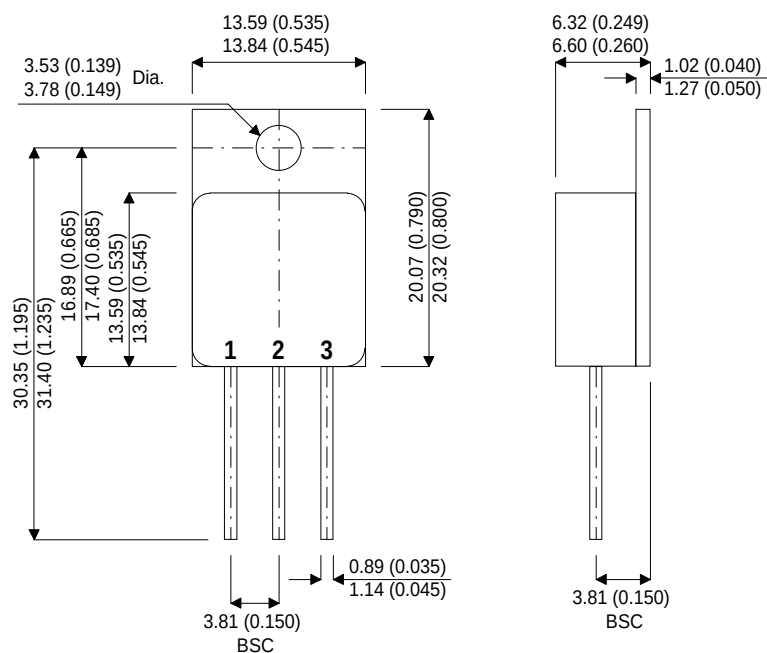


MECHANICAL DATA

Dimensions in mm (inches)



TO-254AA – Package

Pin 1 – Drain

Pin 2 – Source

Pin 3 – Gate

N-CHANNEL POWER MOSFET

V_{DSS}	100V
$I_{D(cont)}$	34A
$R_{DS(on)}$	0.070 Ω

FEATURES

- REPETITIVE AVALANCHE RATING
- ISOLATED AND HERMETICALLY SEALED
- ALTERNATIVE TO TO-3 PACKAGE
- SIMPLE DRIVE REQUIREMENTS
- EASE OF PARALLELING

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 $R_G = 2.35\Omega$

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ELECTRICAL CHARACTERISTICS ($T_{amb} = 25^{\circ}\text{C}$ 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} ΔT _J	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			0.070	Ω
		V _{GS} = 10V	I _D = 34A			0.081	
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}			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			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			1.8	V
		V _{GS} = 0					
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		

Notes

- 1) Pulse Test: Pulse Width $\leq 300\mu\text{s}$, $\delta \leq 2\%$
- 2) Repetitive Rating – Pulse width limited by maximum junction temperature.