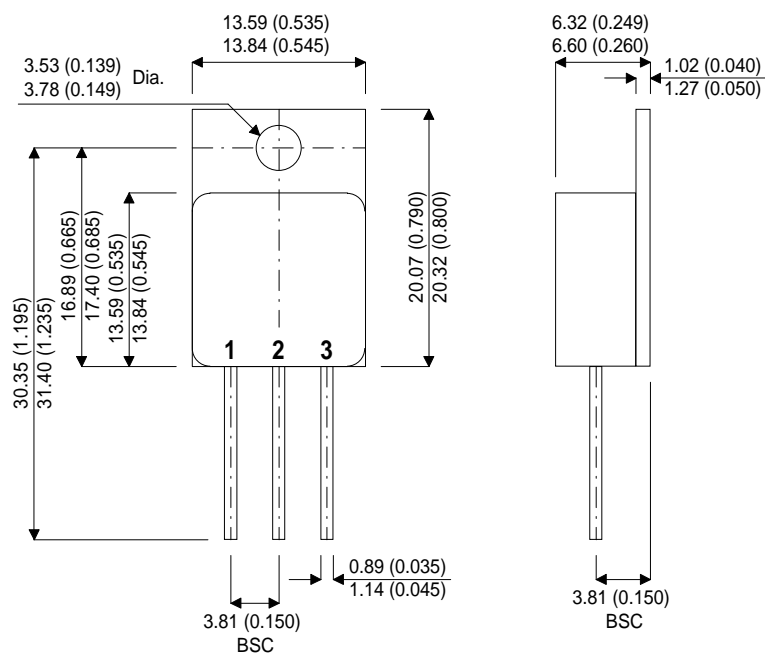


MECHANICAL DATA

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**
 $R_{DS(on)}$ **0.070Ω**

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 $R_G = 2.35\Omega$

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	$V_{GS} = 0$	$I_D = 1\text{mA}$	100	V	
$\frac{\Delta BV_{DSS}}{\Delta T_J}$	Temperature Coefficient of Breakdown Voltage	Reference to 25°C $I_D = 1\text{mA}$		0.13	$\text{V}/^{\circ}\text{C}$	
$R_{DS(on)}$	Static Drain – Source On–State Resistance	$V_{GS} = 10\text{V}$	$I_D = 21\text{A}$		0.070	
		$V_{GS} = 10\text{V}$	$I_D = 34\text{A}$		0.081	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}$	$I_D = 250\mu\text{A}$	2	4	V
g_{fs}	Forward Transconductance	$V_{DS} \geq 15\text{V}$	$I_{DS} = 21\text{A}$	9		$\text{S}(\bar{v})$
I_{DSS}	Zero Gate Voltage Drain Current	$V_{GS} = 0$	$V_{DS} = 0.8BV_{DSS}$ $T_J = 125^{\circ}\text{C}$		25	μA
					250	
I_{GSS}	Forward Gate – Source Leakage	$V_{GS} = 20\text{V}$			100	nA
I_{GSS}	Reverse Gate – Source Leakage	$V_{GS} = -20\text{V}$			-100	nA
DYNAMIC CHARACTERISTICS						
C_{iss}	Input Capacitance	$V_{GS} = 0$			3700	pF
C_{oss}	Output Capacitance	$V_{DS} = 25\text{V}$			1100	
C_{rss}	Reverse Transfer Capacitance	$f = 1\text{MHz}$			200	
Q_g	Total Gate Charge	$V_{GS} = 10\text{V}$	$I_D = 34\text{A}$	50	125	nC
Q_{gs}	Gate – Source Charge	$I_D = 34\text{A}$		8	22	nC
Q_{gd}	Gate – Drain (“Miller”) Charge	$V_{DS} = 0.5BV_{DS}$		15	65	
$t_{d(on)}$	Turn–On Delay Time	$V_{DD} = 50\text{V}$ $I_D = 34\text{A}$ $R_G = 2.35\Omega$			35	ns
t_r	Rise Time				190	
$t_{d(off)}$	Turn–Off Delay Time				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	$I_S = 34\text{A}$	$T_J = 25^{\circ}\text{C}$		1.8	V
t_{rr}	Reverse Recovery Time	$I_F = 34\text{A}$	$T_J = 25^{\circ}\text{C}$		500	ns
Q_{rr}	Reverse Recovery Charge	$d_i / d_t \leq 100\text{A}/\mu\text{s}$		$V_{DD} \leq 50\text{V}$	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.