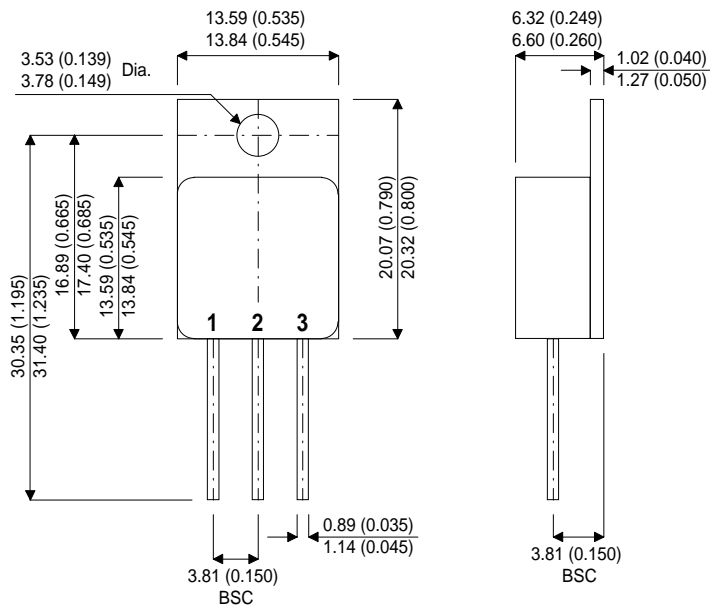


**MECHANICAL DATA**

Dimensions in mm (inches)



**TO-254AA**

Pin 1 – Drain

Pin 2 – Source

Pin 3 – Gate

**P-CHANNEL MOSFET  
IN A TO254  
FOR HIGH RELIABILITY  
APPLICATIONS.**

$V_{DSS}$             **100V**  
 $I_D$                  **34A**  
 $R_{DS(on)}$          **0.07Ω**

**FEATURES**

- FAST SWITCHING
- SCREENING OPTIONS AVAILABLE

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


$V_{GS}$	Gate – Source Voltage	$\pm 20V$
$I_D$	Continuous Drain Current ( $T_{case} = 25^{\circ}C$ )	-34A
$I_D$	Continuous Drain Current ( $T_{case} = 100^{\circ}C$ )	-21A
$I_{DM}$	Pulsed Drain Current <sup>1</sup>	-136A
$P_D$	Power Dissipation	125W
	Linear Derating Factor	1.0W/ $^{\circ}C$
$E_{AS}$	Single Pulse Avalanche Energy <sup>2</sup>	520mJ
$E_{AR}$	Repetitive Avalanche Energy <sup>1</sup>	12mJ
$T_J, T_{stg}$	Operating Junction and Storage Temperature Range	-55 to +150 $^{\circ}C$
$R_{\theta JC}$	Junction – Case Thermal Resistance	1.0W/ $^{\circ}C$

**Notes**

- 1) Repetitive rating; pulse width limited by max. junction temperature.
- 2)  $V_{DD} = -25V$ ,  $L = 3.5mH$ ,  $R_G = 25\Omega$ ,  $I_{AS} = -21A$ , Starting  $T_J = 25^{\circ}C$ ,  $V_{GS} = -10V$

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**ELECTRICAL CHARACTERISTICS** ( $T_{case} = 25^{\circ}C$  unless otherwise stated)

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
<b>STATIC ELECTRICAL RATINGS</b>					
$V_{(BR)DSS}$ Drain – Source Breakdown Voltage	$V_{GS} = 0V$ $I_D = -250\mu A$	-100			V
$R_{DS(on)}$ Static Drain to Source On Resistance <sup>2</sup>	$V_{GS} = -10V$ $I_D = -21A$			0.07	$\Omega$
$V_{GS(th)}$ Gate Threshold Voltage	$V_{DS} = V_{GS}$ $I_D = -250\mu A$	- 2.0		-4.0	V
$g_{fs}$ Forward Transconductance	$V_{DS} = -15V$ $I_D = -21A$	10			S
$I_{DSS}$ Drain to Source Leakage Current	$V_{DS} = -100V$ $V_{GS} = 0V$			-25	$\mu A$
	$V_{DS} = -80V$ $V_{GS} = 0V$ $T_J = 125^{\circ}C$			-250	
$I_{GSS}$ Gate to Source Forward Leakage	$V_{GS} = -20V$			-100	nA
$I_{GSS}$ Gate to Source Reverse Leakage	$V_{GS} = 20V$			100	
<b>DYNAMIC CHARACTERISTICS</b>					
$C_{iss}$ Input Capacitance	$V_{GS} = 0V$		2700		pF
$C_{oss}$ Output Capacitance	$V_{DS} = -25V$		790		
$C_{riss}$ Reverse Transfer Capacitance	$f = 1MHz$		450		
$Q_g$ Total Gate Charge	$I_D = -21A$ $V_{DS} = -80V$ $V_{GS} = -10V$			180	nC
$Q_{gs}$ Gate – Source Charge				25	
$Q_{gd}$ Gate – Drain (“Miller”) Charge				97	
$t_{d(on)}$ Turn-On Delay Time	$V_{DD} = -50V$		17	28	ns
$t_r$ Rise Time	$I_D = -21A$		86	150	
$t_{d(off)}$ Turn-Off Delay Time	$R_G = 2.5\Omega$ $V_{GS} = -10V$		79	100	
$t_f$ Fall Time	$R_G = 2.4\Omega$		81	120	
<b>SOURCE – DRAIN CHARACTERISTICS</b>					
$I_S$ Continuous Source Current	MOSFET symbol showing the integral reverse p-n junction 			-34	A
$I_{SM}$ Pulse Source Current <sup>1</sup>				-136	
$V_{SD}$ Diode Forward Voltage <sup>2</sup>	$T_J = 25^{\circ}C$ , $I_S = 21A$ , $V_{GS} = 0V$			-1.6	V
$t_{rr}$ Reverse Recovery Time <sup>2</sup>	$d_i / d_t \leq -100A/\mu s$		170	260	ns
$Q_{rr}$ Reverse Recovery Charge <sup>2</sup>	$T_J = 25^{\circ}C$ , $I_F = -21A$		1.2	1.8	$\mu C$
$t_{on}$ Forward Turn-On Time	negligible				—
<b>PACKAGE CHARACTERISTICS</b>					
$L_D$ Internal Drain	Between lead, 6mm(0.25in.) from package and center of die contact			4.5	nH
$L_S$ Internal Source Inductance				7.5	

**Notes**

- 1) Repetitive rating; pulse width limited by max. junction temperature.
- 2) Pulse Test: Pulse Width  $\leq 300ms$ ,  $\delta \leq 2\%$

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