

# N-CHANNEL LATERAL POWER MOSFET FOR AUDIO

## ALF08N16K/ALF08N20K

- Designed specifically for linear audio amplifier applications
- High-speed for high bandwidth amplifiers
- High voltage rating – 160V & 200V
- TO-3 metal package
- Enhanced oscillation suppression in multi-device applications
- Complimentary P-channel available – ALF08P16K/ALF08P20K



### ABSOLUTE MAXIMUM RATINGS

( $T_C = 25^\circ\text{C}$  unless otherwise stated)

		ALF08N16K	ALF08N20K
$V_{DSS}$	Drain - Source Voltage	160V	200V
$V_{GS}$	Gate - Source Voltage	$\pm 20\text{V}$	
$I_D$	Continuous Drain Current	8A	
$I_{DR}$	Body Drain Diode Current	8A	
$P_D$	Allowable Power Dissipation $T_{case} = 25^\circ\text{C}$	125W	
$T_{ch}$	Channel Temperature	150°C	
$T_{stg}$	Storage Temperature Range	-55 to +150°C	

### THERMAL PROPERTIES

Symbols	Parameters	Min.	Typ.	Max.	Units
$R_{\theta JC}$	Thermal Resistance, Junction To Case			1	$^\circ\text{C/W}$

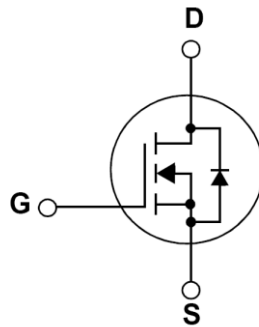
ELECTRICAL CHARACTERISTICS ( $T_C = 25^\circ\text{C}$  unless otherwise stated)

Symbols	Parameters	Test Conditions	Min.	Typ	Max.	Units
$BV_{DSX}$	Drain-Source Breakdown Voltage	$V_{GS} = -10\text{V}$	ALF08N16K	160		V
		$I_D = 10\text{mA}$	ALF08N20K	200		
$BV_{GSS}$	Gate-Source Breakdown Voltage	$V_{DS} = 0$ $I_G = \pm 100 \mu\text{A}$	$\pm 20$			V
$V_{GS(\text{off})}$	Gate-Source Cut-off Voltage	$V_{DS} = 10\text{V}$ $I_D = 100\text{mA}$	0.15		1.5	V
$V_{DS(\text{sat})}^*$	Drain-Source Saturation Voltage	$V_{GD} = 0$ $I_D = 8\text{A}$			12	V
$ y_{fs} ^*$	Forward Transfer Admittance	$V_{DS} = 10\text{V}$ $I_{DS} = 3\text{A}$	0.7		2	S( $\Omega$ )
$I_{DSX}$	Drain-Source Cut-Off Current	$V_{GS} = -10\text{V}$	$V_{DS} = 160\text{V}$ ALF08N16K		10	mA
			$V_{DS} = 200\text{V}$ ALF08N20K		10	

\* Pulse Test: Pulse Width = 300 $\mu\text{s}$ , Duty Cycle  $\leq 2\%$

DYNAMIC CHARACTERISTICS

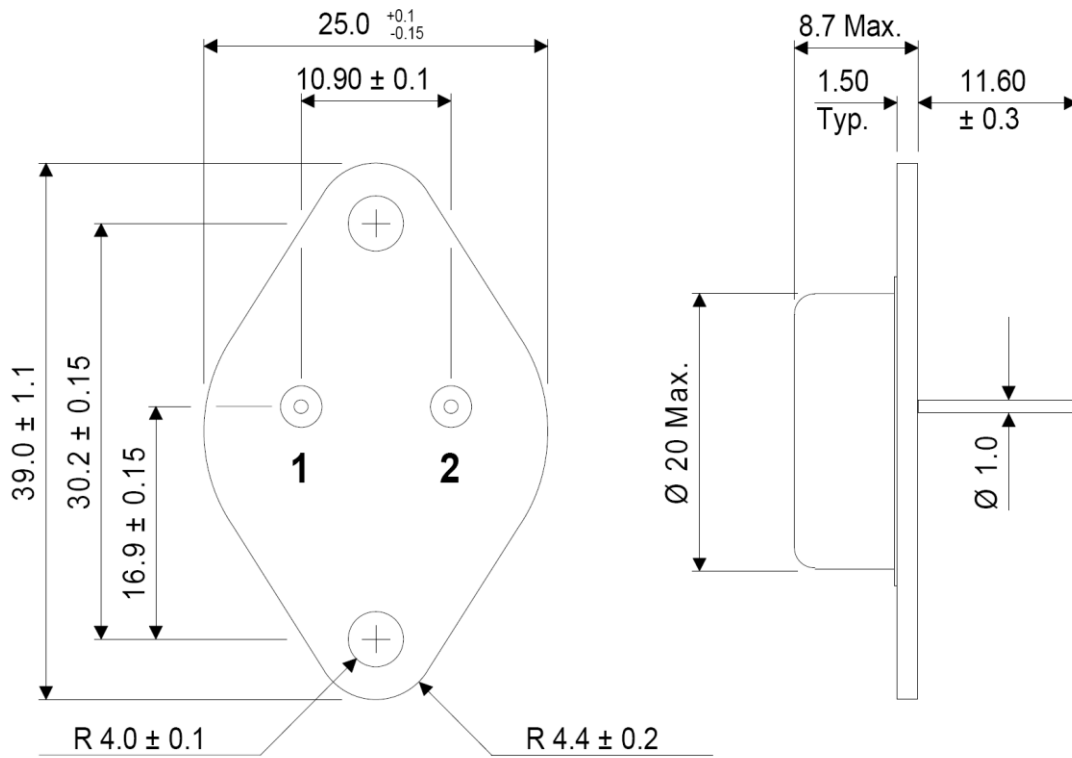
$C_{iss}$	Input Capacitance	$V_{GS} = 0$		500		pF
$C_{oss}$	Output Capacitance	$V_{DS} = 10\text{V}$		300		
$C_{rss}$	Reverse Transfer Capacitance	$f = 1.0\text{MHz}$		10		
$t_{on}$	Turn-On Time	$V_{DS} = 20\text{V}$		100		ns
$t_{off}$	Turn-Off Time	$I_D = 5\text{A}$		50		



Please Note: These lateral mosfets do not include a G-S protection network and care must therefore be taken with static handling precautions and the appropriate protection in the amplifier circuit. Please refer to the application notes for more information.

**MECHANICAL DATA**

Dimensions in mm

**TO-3**

Pin 1 – Gate

Pin 2 – Drain

Case – Source