

# N-CHANNEL LATERAL POWER MOSFET FOR AUDIO

## ALF16N16K/ALF16N20K

- 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 – ALF16P16K/ALF16P20K



## ABSOLUTE MAXIMUM RATINGS

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

		ALF16N16K	ALF16N20K
$V_{DSS}$	Drain – Source Voltage	160V	200V
$V_{GSS}$	Gate – Source Voltage	$\pm 20\text{V}$	
$I_D$	Continuous Drain Current	16A	
$I_{DR}$	Body Drain Diode Current	16A	
$P_D$	Allowable Power Dissipation $T_{case} = 25^\circ\text{C}$	250W	
$T_{ch}$	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			0.5	$^\circ\text{C/W}$

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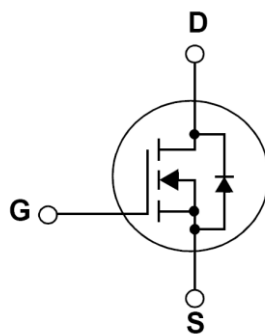
### ELECTRICAL CHARACTERISTICS (T<sub>C</sub> = 25°C unless otherwise stated)

Symbols	Parameters	Test Conditions	Min.	Typ	Max.	Units
BV <sub>DSX</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> = -10V	ALF16N16K	160		V
		I <sub>D</sub> = 10mA	ALF16N20K	200		
I <sub>GSS</sub>	Gate-Source Leakage Current	V <sub>GS</sub> = ±20V    V <sub>DS</sub> = 0			100	μA
V <sub>GS(off)</sub>	Gate-Source Cut-off Voltage	V <sub>DS</sub> = 10V    I <sub>D</sub> = 100mA	0.1		1.5	V
V <sub>DS(sat)*</sub>	Drain-Source Saturation Voltage	V <sub>GD</sub> = 0    I <sub>D</sub> = 16A			12	V
y <sub>fs</sub>  *	Forward Transfer Admittance	V <sub>DS</sub> = 10V    I <sub>D</sub> = 3A	1.4		4	S(Ω)
I <sub>DSX</sub>	Drain-Source Cut-Off Current	V <sub>GS</sub> = -10V	V <sub>DS</sub> = 160V		10	mA
			V <sub>DS</sub> = 200V		10	

\* Pulse Test: Pulse Width = 300μs, Duty Cycle ≤ 2%

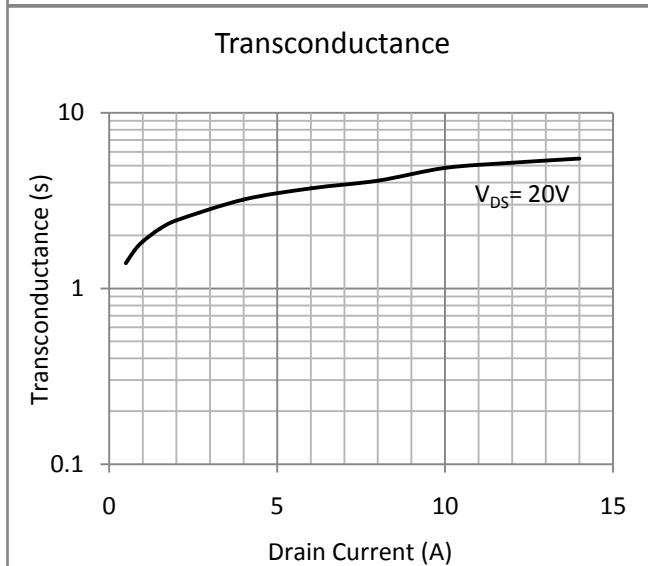
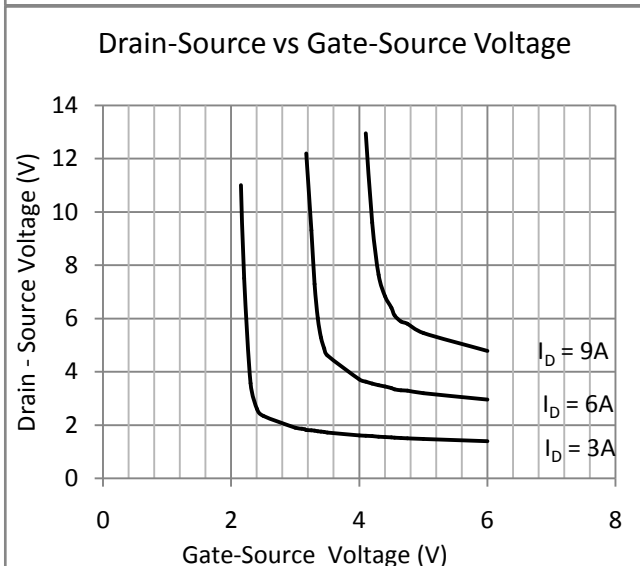
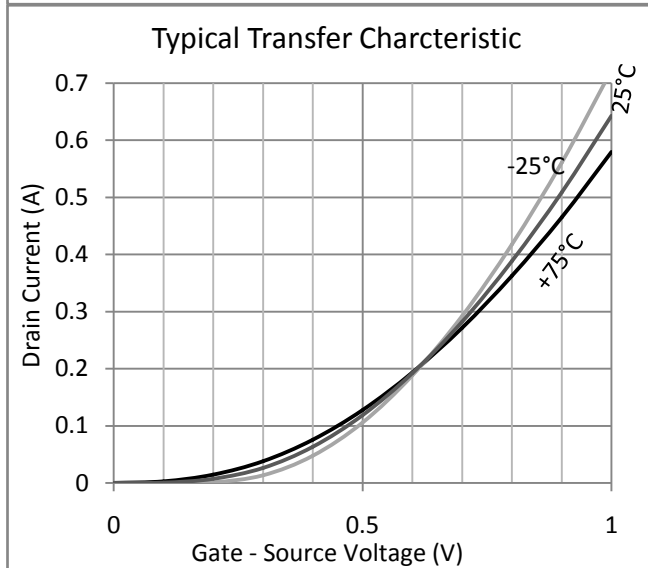
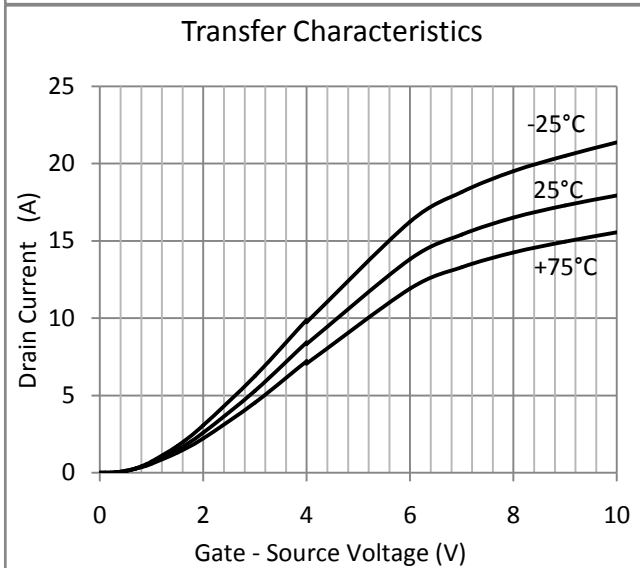
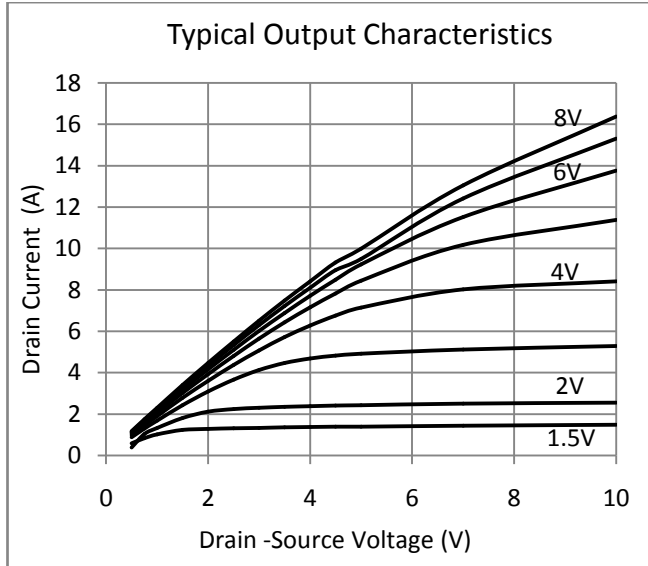
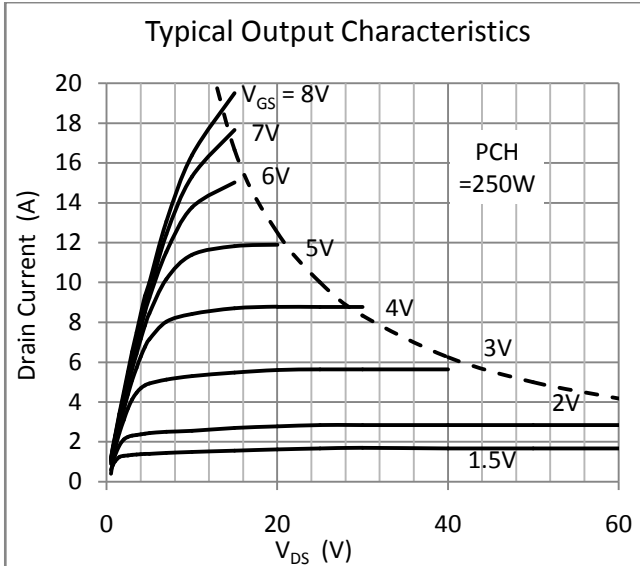
### DYNAMIC CHARACTERISTICS

C <sub>iss</sub>	Input Capacitance	V <sub>GS</sub> = 0		1400		pF
C <sub>oss</sub>	Output Capacitance	V <sub>DS</sub> = 10V		550		
C <sub>rss</sub>	Reverse Transfer Capacitance	f = 1.0MHz		10		
t <sub>on</sub>	Turn-On Time	V <sub>DS</sub> = 20V		TBA		ns
t <sub>off</sub>	Turn-Off Time	I <sub>D</sub> = 7A		TBA		

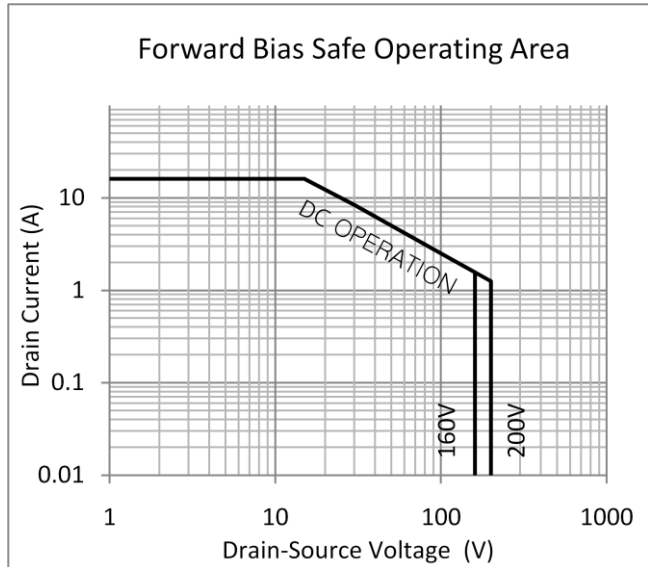
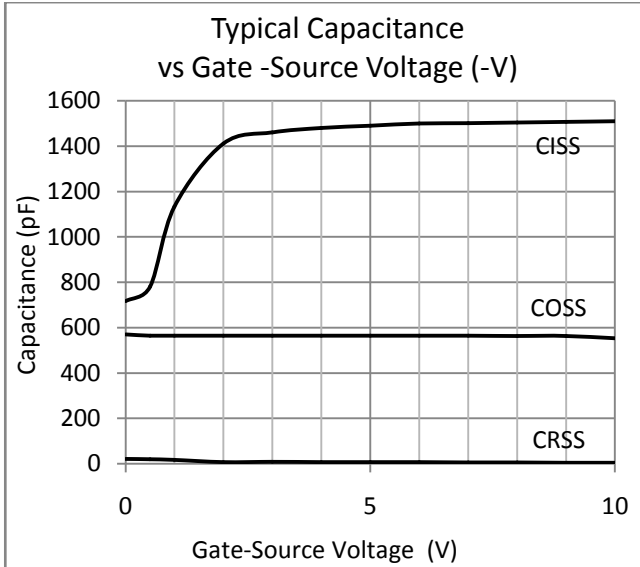


Please Note: These lateral mosfets do not include a G-S protection network and care must therefore be taken with static handling precautions and the appropriate protection in the amplifier circuit. Please refer to the application notes for more information.

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

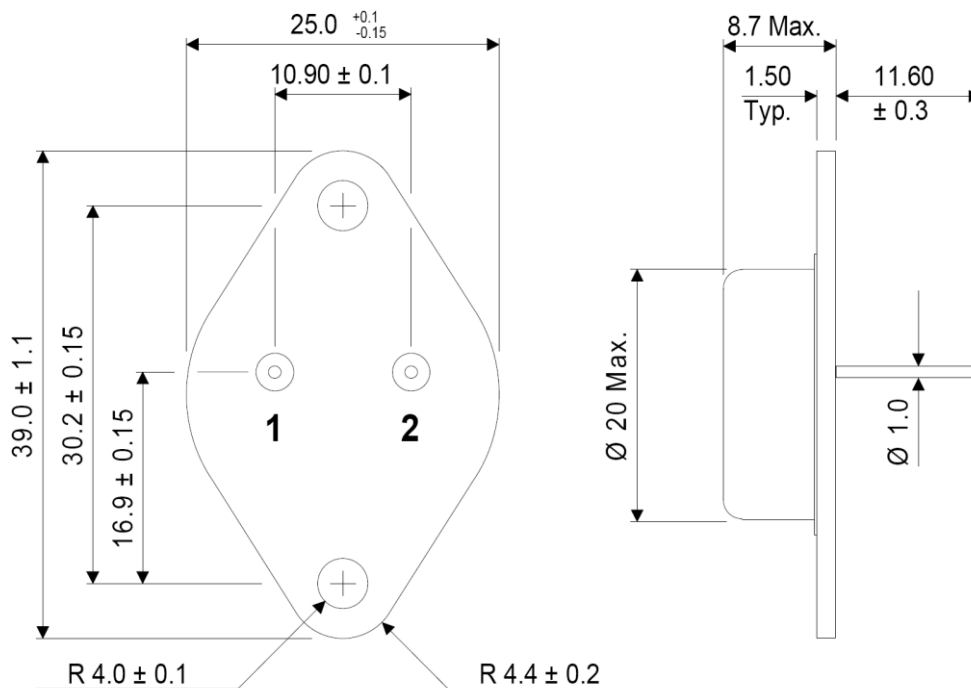


**GENERAL CHARACTERISTICS CONTINUED** ( $T_C = 25^\circ\text{C}$  unless otherwise stated)



**MECHANICAL DATA**

Dimensions in mm



**TO-3**

Pin 1 – Gate

Pin 2 – Drain

Case – Source

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