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°C unless otherwise stated)			ALF16N16K	ALF16N20K
V_{DSS}	Drain – Source Voltage		160V	200V
V_{GSS}	Gate – Source Voltage		±20V	
I_D	Continuous Drain Current		16A	
I_{DR}	Body Drain Diode Current		16A	
P_D	Allowable Power Dissipation	T_{case} = 25°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	°C/W

Magnatec reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by Magnatec is believed to be both accurate and reliable at the time of going to press. However Magnatec assumes no responsibility for any errors or omissions discovered in its use. Magnatec encourages customers to verify that datasheets are current before placing orders.

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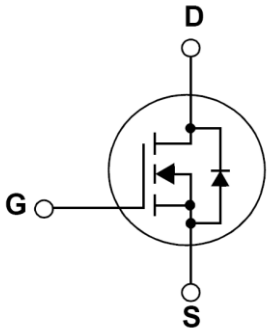
ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise stated)

Symbols	Parameters	Test Conditions		Min.	Typ	Max.	Units
BV_{DSX}	Drain-Source Breakdown Voltage	V_{GS} = -10V I_D = 10mA	ALF16N16K	160			V
			ALF16N20K	200			
I_{GSS}	Gate-Source Leakage Current	V_{GS} = ±20V	V_{DS} = 0			100	µA
$V_{GS(off)}$	Gate-Source Cut-off Voltage	V_{DS} = 10V	I_D = 100mA	0.1		1.5	V
$V_{DS(sat)}$*	Drain-Source Saturation Voltage	V_{GD} = 0	I_D = 16A			12	V
$\|y_{fs}\|$*	Forward Transfer Admittance	V_{DS} = 10V	I_D = 3A	1.4		4	S(℧)
I_{DSX}	Drain-Source Cut-Off Current	V_{GS} = -10V	V_{DS} = 160V ALF16N16K			10	mA
			V_{DS} = 200V ALF16N20K			10	

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

DYNAMIC CHARACTERISTICS

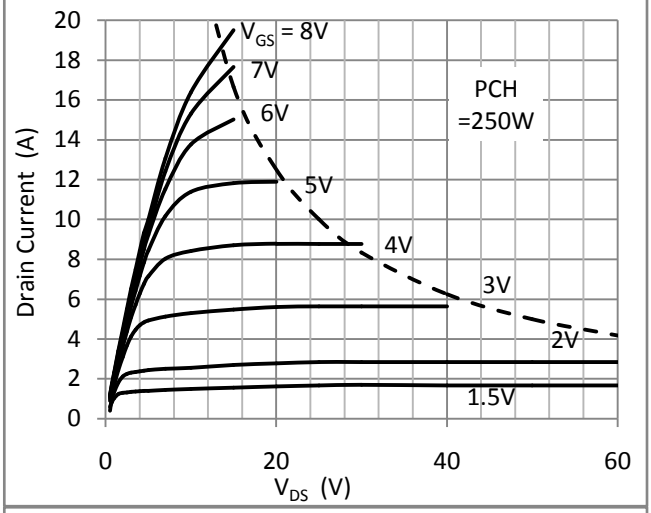
C_{iss}	Input Capacitance	V_{GS} = 0		1400		pF
C_{oss}	Output Capacitance	V_{DS} = 10V		550		
C_{rss}	Reverse Transfer Capacitance	f = 1.0MHz		10		
t_{on}	Turn-On Time	V_{DS} = 20V		TBA		ns
t_{off}	Turn-Off Time	I_D = 7A		TBA		



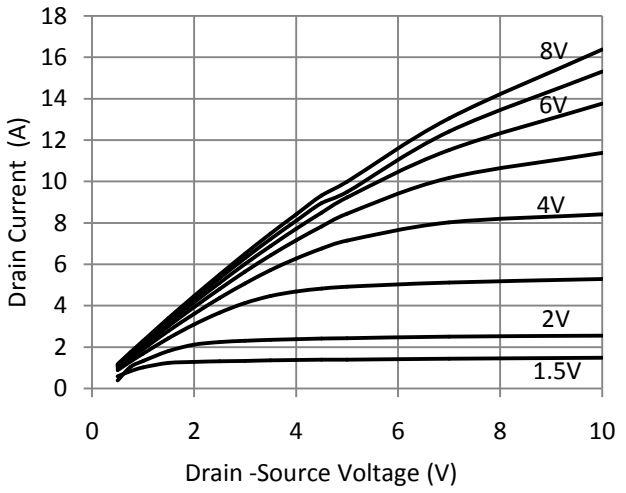
Please Note: These lateral mosfets do not include a G-S protection network and care must therefore be taken with static handling precautions and the appropriate protection in the amplifier circuit. Please refer to the application notes for more information.

GENERAL CHARACTERISTICS (T_C = 25°C unless otherwise stated)

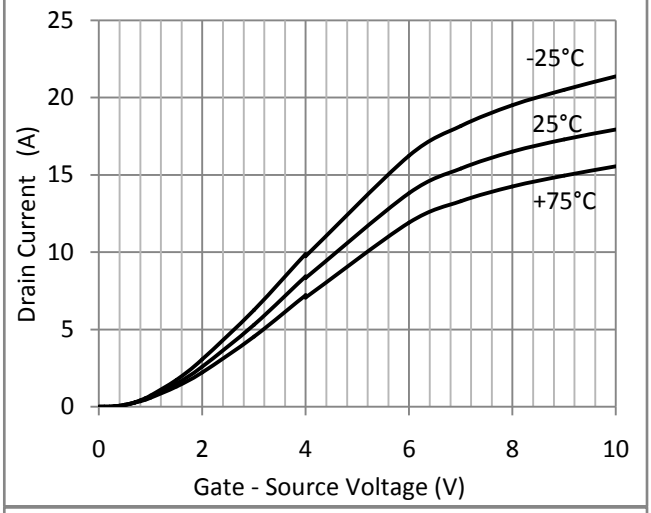
Typical Output Characteristics



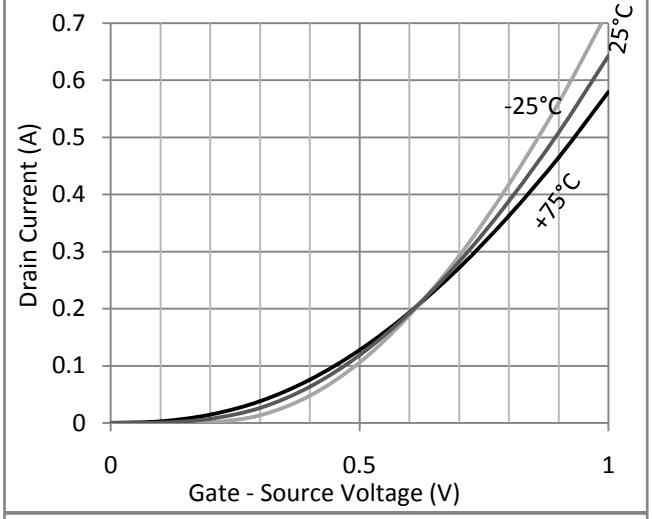
Typical Output Characteristics



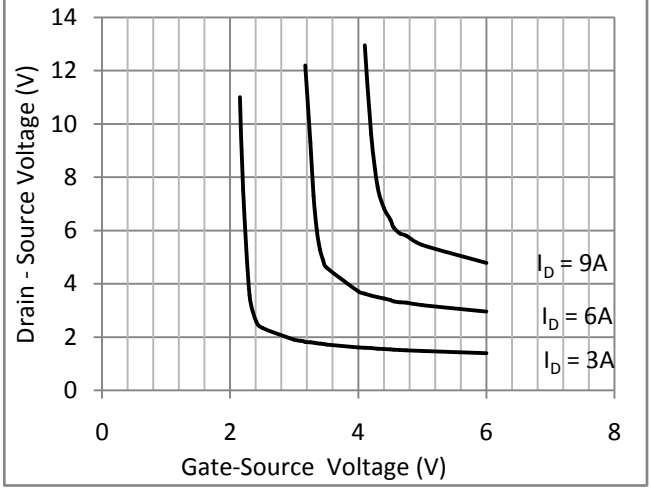
Transfer Characteristics



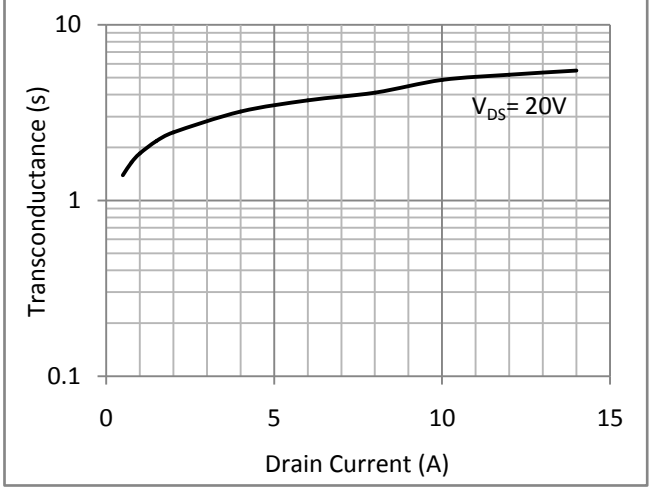
Typical Transfer Charcteristic



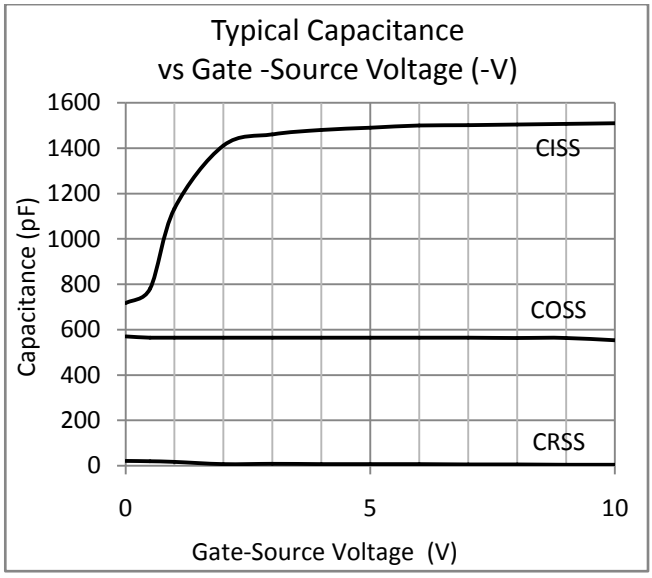
Drain-Source vs Gate-Source Voltage

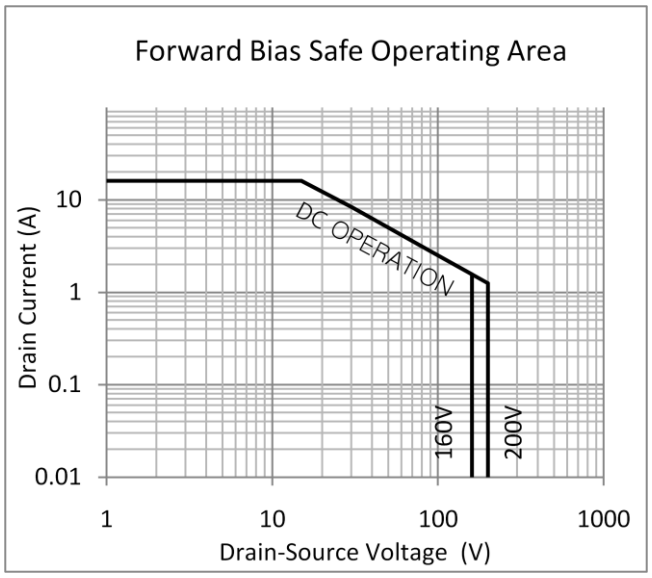


Transconductance



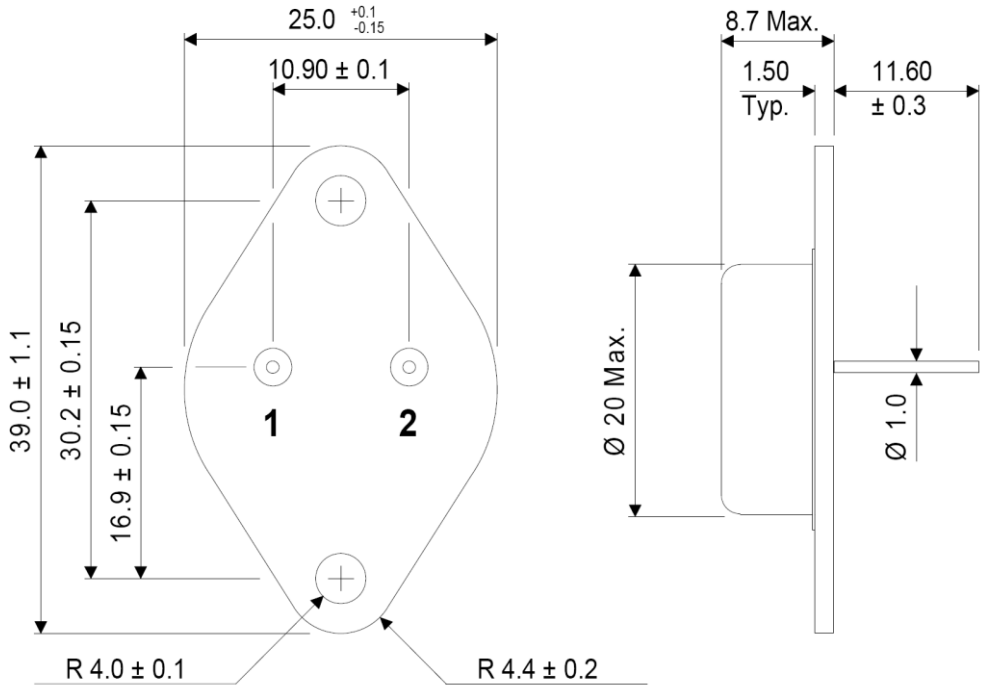
GENERAL CHARACTERISTICS CONTINUED (T_C = 25°C unless otherwise stated)





MECHANICAL DATA

Dimensions in mm



TO–3

Pin 1 – Gate Pin 2 – Drain Case – Source