

P-CHANNEL LATERAL POWER MOSFET FOR AUDIO

ALF16P16K/ALF16P20K

- 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 N-channel available – ALF16N16K/ALF16N20K



ABSOLUTE MAXIMUM RATINGS

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

		ALF16P16K	ALF16P20K
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 $T_{case} = 25^\circ\text{C}$	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	°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.

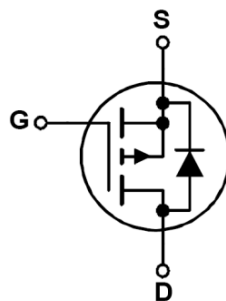
ELECTRICAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$ unless otherwise stated)

Symbols	Parameters	Test Conditions	Min	Typ	Max	Units
BV_{DSX}	Drain-Source Breakdown Voltage	$V_{GS} = 10\text{V}$ $I_D = -10\text{mA}$	ALF16P16K -160 ALF16P20K -200			V
I_{GSS}	Gate-Source Leakage Current	$V_{DS} = 0$ $V_{GS} = \pm 20\text{V}$			100	μA
$V_{GS(\text{off})}$	Gate-Source Cut-off Voltage	$V_{DS} = -10\text{V}$ $I_D = -100\text{mA}$	-0.1		-1.5	V
$V_{DS(\text{sat})}^*$	Drain-Source Saturation Voltage	$V_{GD} = 0$ $I_D = -16\text{A}$			-12	V
$ y_{fs} ^*$	Forward Transfer Admittance	$V_{DS} = -10\text{V}$ $I_{DS} = -3\text{A}$	1.4		4	S(Ω)
I_{DSX}	Drain-Source Cut-Off Current	$V_{GS} = -10\text{V}$	$V_{DS} = -160\text{V}$ ALF16P16K $V_{DS} = -200\text{V}$ ALF16P20K		-10 -10	mA

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

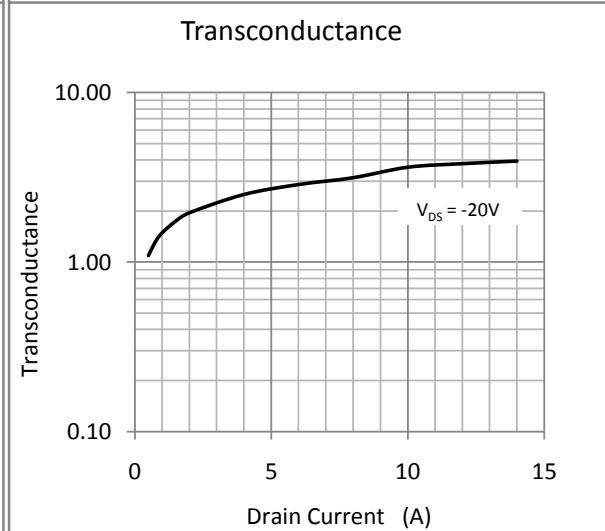
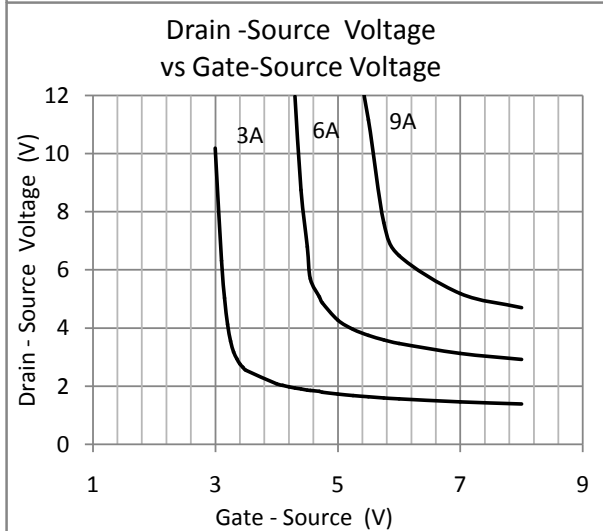
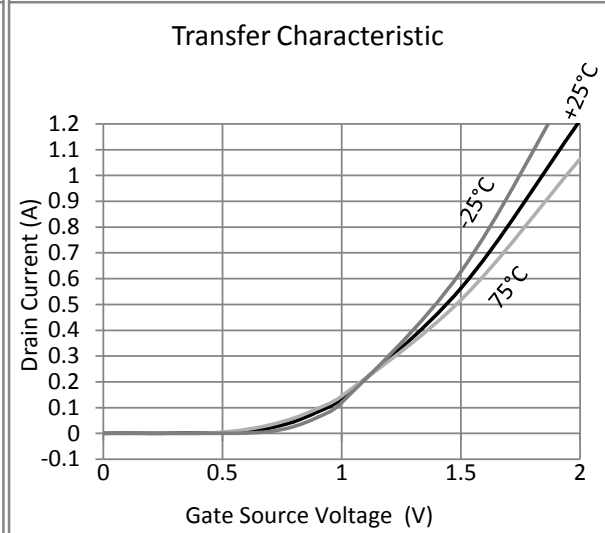
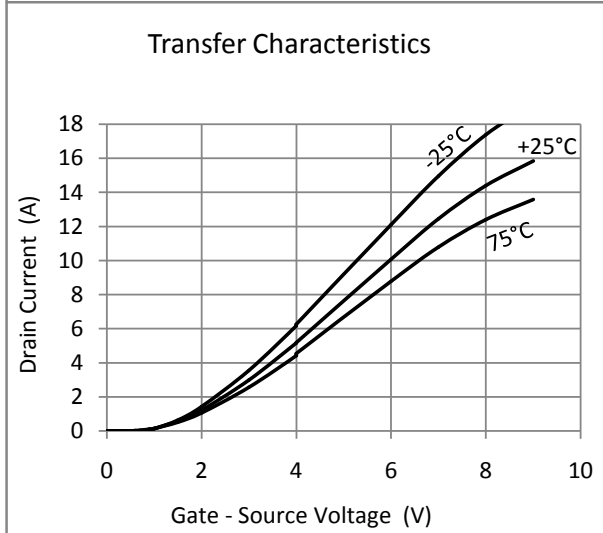
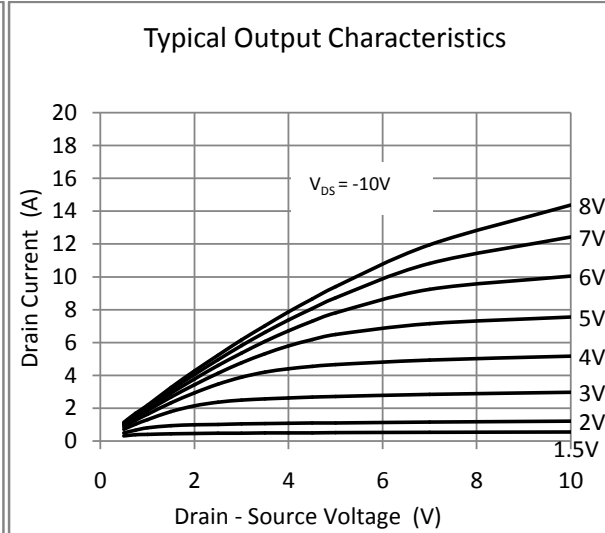
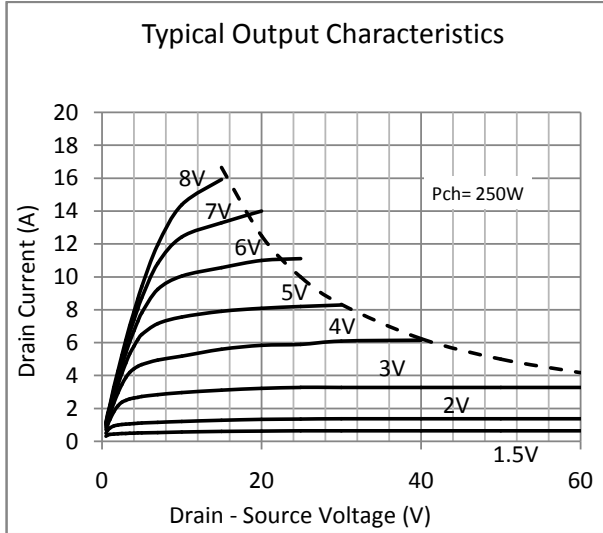
DYNAMIC CHARACTERISTICS

C_{iss}	Input Capacitance	$V_{GS} = 0$		1800		pF
C_{oss}	Output Capacitance	$V_{DS} = -10\text{V}$		800		
C_{rss}	Reverse Transfer Capacitance	$f = 1.0\text{MHz}$		50		
t_{on}	Turn-On Time	$V_{DS} = -20\text{V}$		150		ns
t_{off}	Turn-Off Time	$I_D = -7\text{A}$		100		

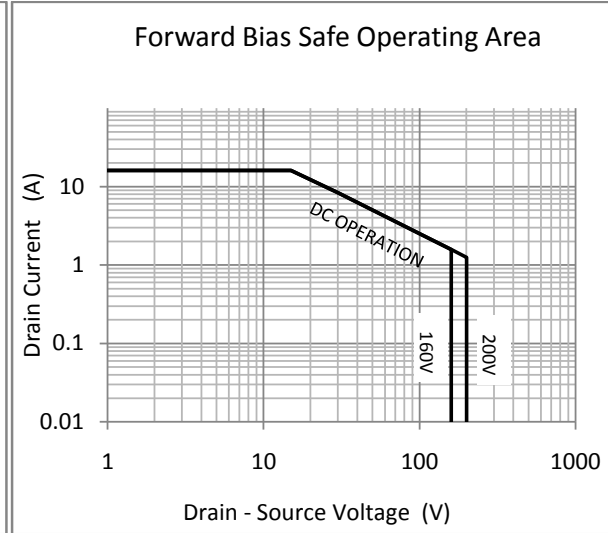
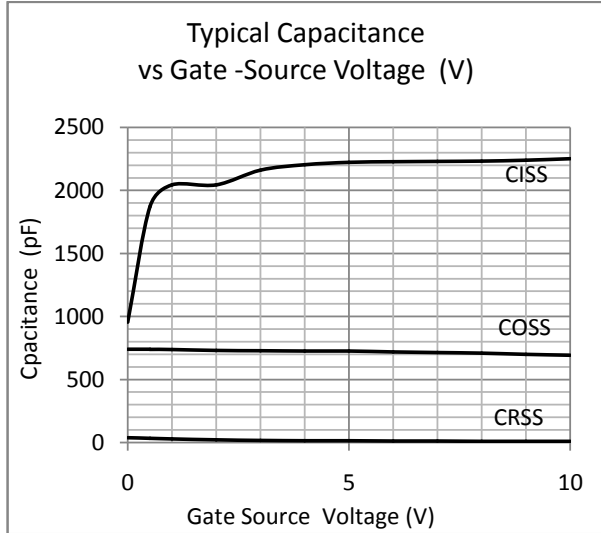


Please Note: These lateral mosfets do not include a G-S protection network and care must therefore be taken with static handling precautions and the appropriate protection in the amplifier circuit. Please refer to the application notes for more information.

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

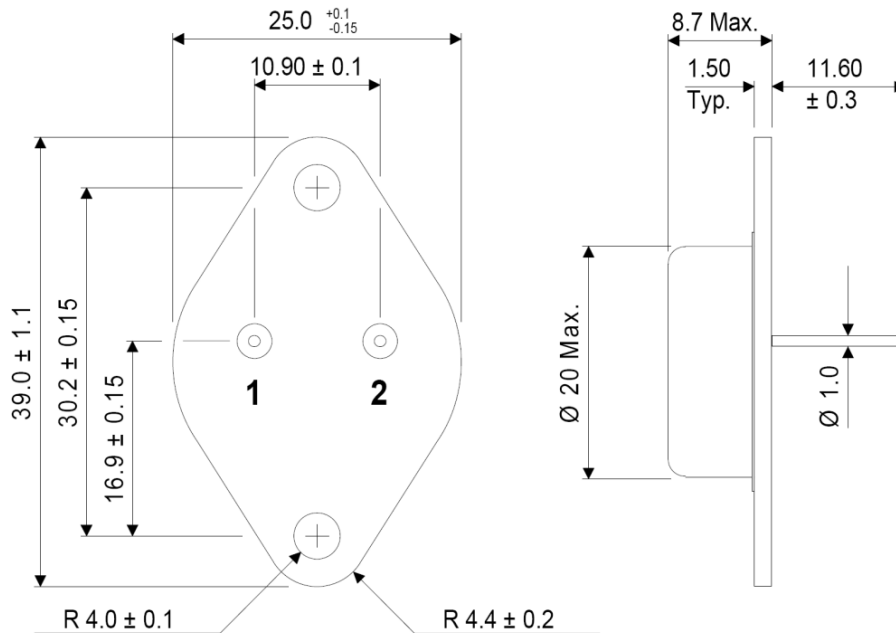


GENERAL CHARACTERISTICS CONTINUED ($T_C = 25^\circ\text{C}$ unless otherwise stated)



MECHANICAL DATA

Dimensions in mm



TO-3

Pin 1 – Gate

Pin 2 – Drain

Case – Source