



# ACE130P100B

## P-Channel Enhancement Mode Power MOSFET

### Features

- $V_{DS} = -30V$  ,  $I_D = -92A$
- $R_{DS(ON)} @ V_{GS} = -10V$  , TYP=  $-4m\Omega$
- $R_{DS(ON)} @ V_{GS} = -4.5V$  , TYP=  $-5\Omega$

### General Description

- load switch
- Power Management in LCD TV Inverter

### Absolute Maximum Ratings @ $T_A=25^\circ C$ unless otherwise noted

Parameter	Symbol	Max	Unit
Drain-Source Voltage	$V_{DSS}$	-30	V
Gate-Source Voltage	$V_{GSS}$	$\pm 20$	V
Drain Current (Continuous)*AC	$I_D$	$T_A=25^\circ C$	-92
		$T_A=100^\circ C$	-60
Drain Current (Pulsed)*B	$I_{DM}$	-368	A
Power Dissipation	$P_D$	73.5	W
Operating temperature / Storage temperature	$T_J/T_{STG}$	-55~150	$^\circ C$

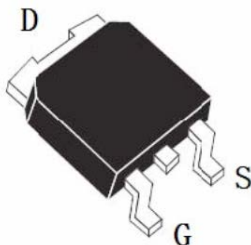
A: The value of  $R_{\theta JA}$  is measured with the device mounted on 1in<sup>2</sup> FR-4 board with 2oz. Copper, in a still air environment with  $T_A=25^\circ C$ . The value in any given application depends on the user's specific board design.

B: Repetitive rating, pulse width limited by junction temperature.

C: The current rating is based on the  $t \leq 10s$  junction to ambient thermal resistance rating.

### Packaging Type

TO-252



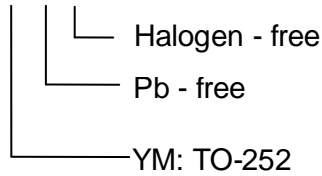


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### Ordering information

ACE130P100B XX + H



### Electrical Characteristics $T_A=25^\circ\text{C}$ , unless otherwise specified.

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>Static</b>						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	-30			V
Zero gate voltage drain current	$I_{DSS}$	$V_{DS}=-30V, V_{GS}=0V$			1	$\mu A$
Gate threshold voltage	$V_{GS(th)}$	$V_{GS}=V_{DS}, I_{DS}=250\mu A$	-1	-1.5	-2.5	V
Gate leakage current	$I_{GSS}$	$V_{GS}=\pm 20V, V_{DS}=0V$			$\pm 100$	$\mu A$
Drain-source on-state resistance	$R_{DS(ON)}$	$V_{GS}=-10V, I_D=-20A$		4	5.5	m $\Omega$
		$V_{GS}=-4.5V, I_D=-10A$		5	6.5	
Diode forward voltage	$V_{SD}$	$I_{SD}=-20A, V_{GS}=0V$			-1.2	V
Diode Forward Current	$I_S$	TC =25 $^\circ\text{C}$			-92	A
<b>Switching</b>						
Total Gate Charge	$Q_g$	$V_{GS}=15V, V_{DS}=4.5V,$ $I_D=10A$		8		nC
Gate-Source Charge	$Q_{gs}$			2.8		
Gate-Drain Charge	$Q_{gd}$			1.8		
Turn-on Delay Time	$t_{d(on)}$	$V_{DD}=15V, R_L=1.5\Omega$ $V_{GEN}=10V, I_D=10A$ $R_G=1\Omega$		11		ns
Turn-on Rise Time	$t_r$			11		
Turn-off Delay Time	$t_{d(off)}$			19		
Turn-off Fall Time	$t_f$			9		
<b>Dynamic</b>						
Input Capacitance	$C_{iss}$	$V_{GS}=0V, V_{DS}=15V,$ $f=1.0MHz$		1100		pF
Output Capacitance	$C_{oss}$			355		
Reverse Transfer Capacitance	$C_{rss}$			37		



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### Typical Performance Characteristics

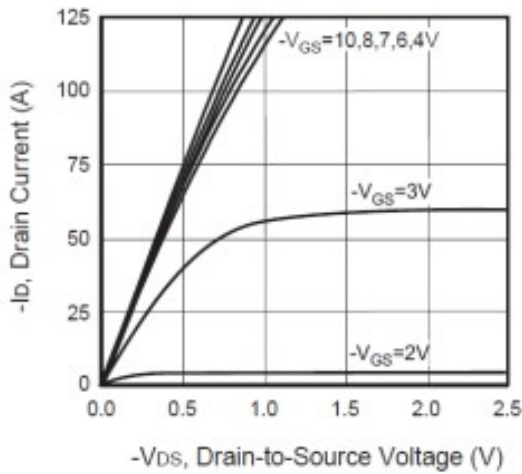


Figure 1. Output Characteristics

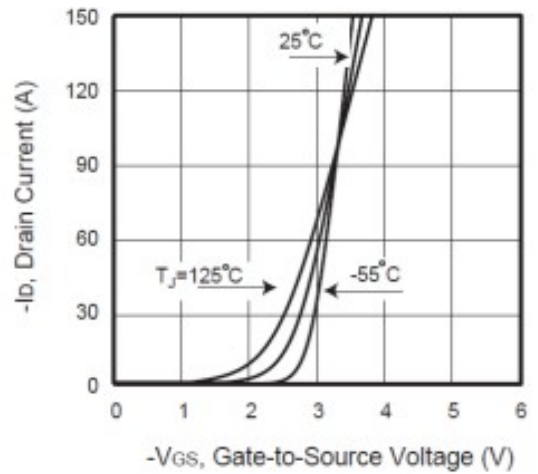


Figure 2. Transfer Characteristics

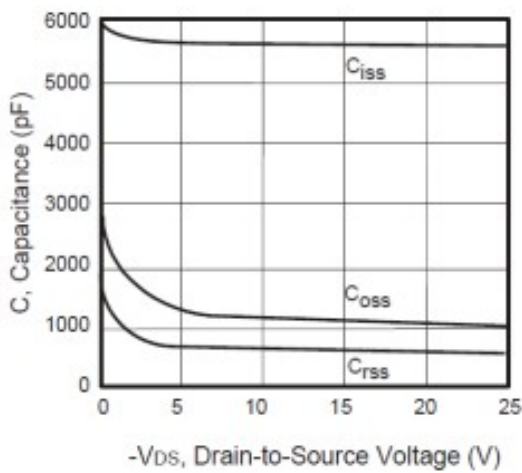


Figure 3. Capacitance

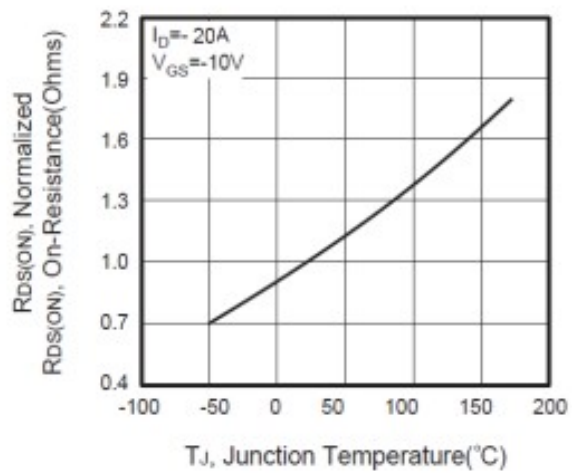


Figure 4. On-Resistance Variation with Temperature

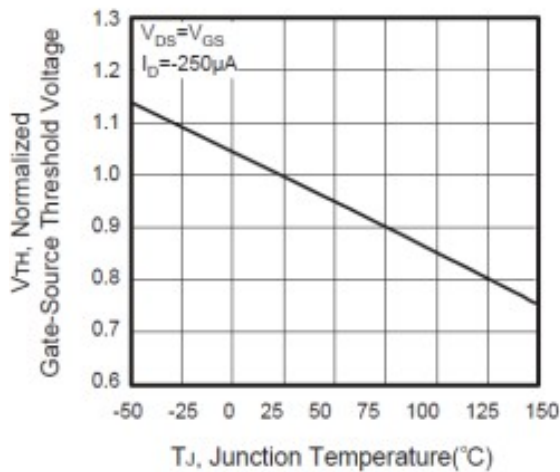


Figure 5. Gate Threshold Variation with Temperature

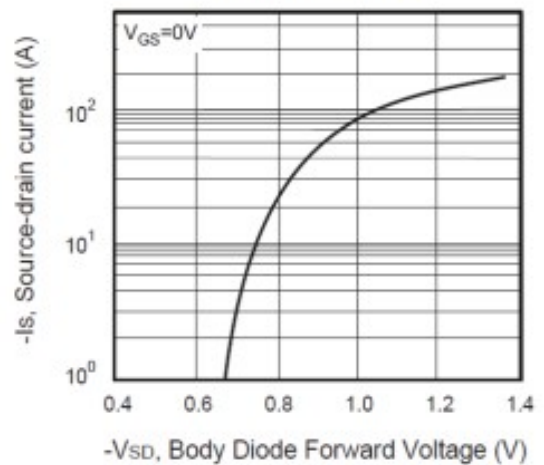


Figure 6. Body Diode Forward Voltage Variation with Source Current



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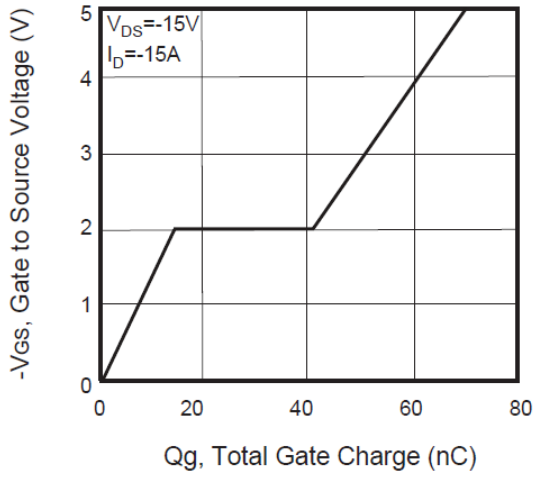


Figure 7. Gate Charge

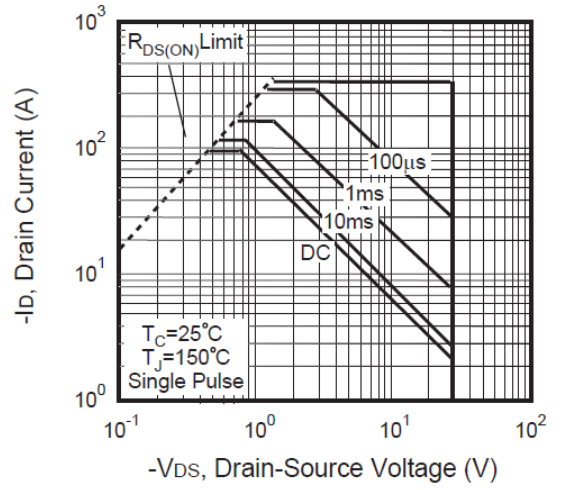


Figure 8. Maximum Safe Operating Area

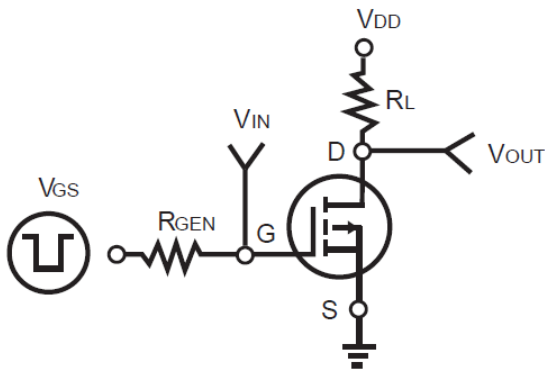


Figure 9. Switching Test Circuit

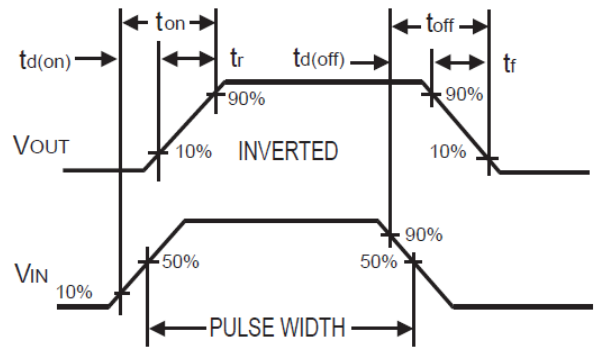


Figure 10. Switching Waveforms

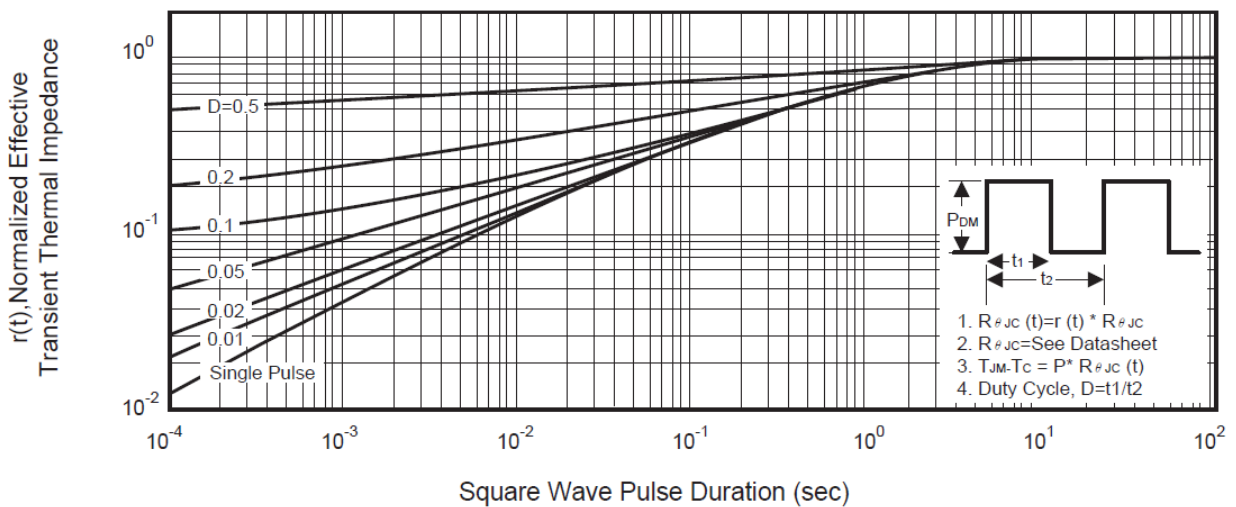


Figure 11. Normalized Thermal Transient Impedance Curve

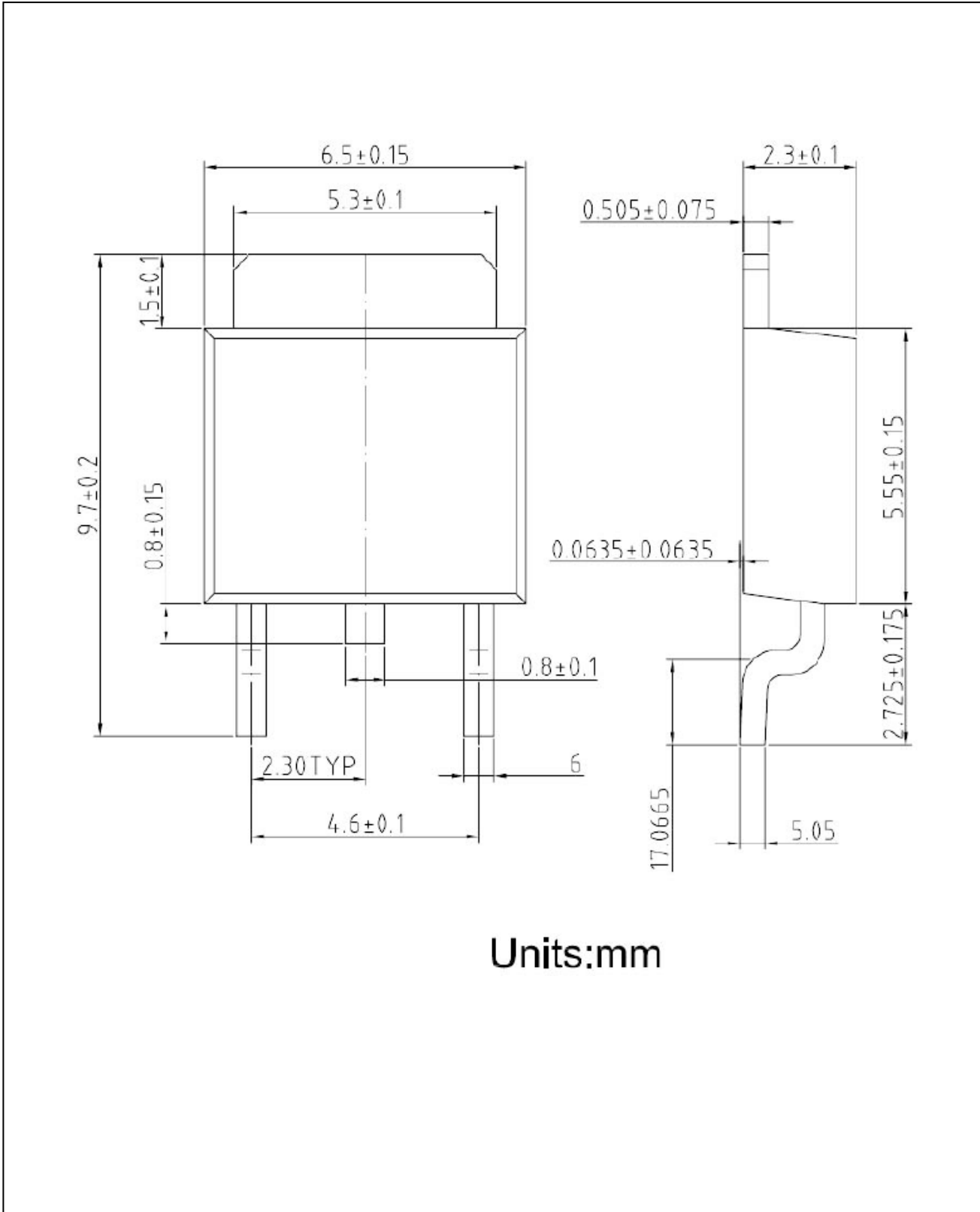


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## Packing Information

TO-252



Units:mm



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### Notes

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2. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.