



# ACE1522B

## P-Channel Enhancement Mode Field Effect Transistor

### Description

Line current interrupter in telephone sets Relay High speed and line transformer drivers.

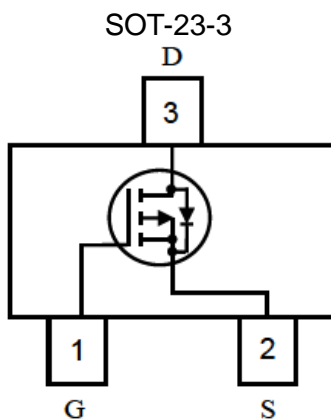
### Features

- $V_{DS}(V)=-50V$ ,  $I_D=-0.13A$
- $R_{DS(ON)} < 10\Omega @ V_{GS}=-5V$
- Voltage controlled p-channel small signal switch
- High density cell design for low  $R_{DS(ON)}$

### Absolute Maximum Ratings

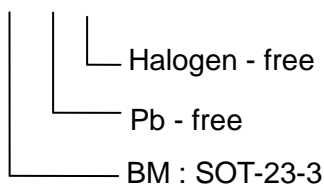
Parameter	Symbol	Max	Unit
Drain-Source Voltage	$V_{DS}$	-50	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Drain Current (Continuous)	$I_D$	-0.13	A
Drain Current (Pulse)	$I_D$	-0.52	
Power Dissipation <sup>(1)</sup>	$P_D$	0.35	W
Operating and Storage Temperature Range	$T_J, T_{STG}$	-55 to 150	$^{\circ}C$

### Packaging Type



### Ordering information

ACE1522B XX + H





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### Electrical Characteristics

$T_A=25^{\circ}\text{C}$  unless otherwise noted

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
On/Off characteristics						
Drain-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> =0V, I <sub>D</sub> =-250uA	-50			V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =-50V, V <sub>GS</sub> =0V			-15	uA
		V <sub>DS</sub> =-50V, V <sub>GS</sub> =0V, T <sub>J</sub> =125°C			-60	
Gate Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =±20V, V <sub>DS</sub> =0V			±10	nA
On characteristics <sup>b</sup>						
Static Drain-Source On-Resistance	R <sub>DS(ON)</sub>	V <sub>GS</sub> =-5V, I <sub>D</sub> =-0.1A			10	Ω
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =-1mA	-0.8	-1.75	-2	V
Forward Transconductance	g <sub>FS</sub>	V <sub>DS</sub> =-25V, I <sub>D</sub> =-0.1A	0.05	0.6		S
Switching characteristics <sup>b</sup>						
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> =-25V, I <sub>D</sub> =-0.1A V <sub>GS</sub> =-5V		0.9	1.3	nC
Gate-Source Charge	Q <sub>gs</sub>			0.2		
Gate-Drain Charge	Q <sub>gd</sub>			0.3		
Turn-On Delay Time	T <sub>d(on)</sub>	V <sub>DD</sub> =-30V, I <sub>D</sub> =-0.27A, V <sub>GS</sub> =-10V R <sub>GEN</sub> =6Ω		2.5	5	ns
Turn-On Rise Time	t <sub>f</sub>			6.3	13	
Turn-Off Delay Time	t <sub>d(off)</sub>			10	20	
Turn-Off Fall Time	t <sub>f</sub>			4.8	9.6	
Dynamic characteristics						
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =-10V, V <sub>GS</sub> =0V f=200KHz		33		pF
Output Capacitance	C <sub>oss</sub>			38		
Reverse Transfer Capacitance	C <sub>rss</sub>			36		
Gate Resistance	R <sub>G</sub>	V <sub>GS</sub> =-15mV, f=1.0MHz		9		Ω
Drain-source diode characteristics and maximum ratings <sup>b</sup>						
Drain-Source Diode Forward Voltage	V <sub>SD</sub>	V <sub>GS</sub> =0V, I <sub>S</sub> =-0.26A <sup>(2)</sup>		-0.8	-1.2	V

Note: 1.  $R_{\theta JA}$  is the sum of the junction-to-case and case-to-ambient thermal resistance where the case thermal reference is defined as the solder mounting surface of the drain pins.  $R_{\theta JC}$  is guaranteed by design while  $R_{\theta CA}$  is determined by the user's board design.

2. Pulse Test: Pulse Width  $\leq 300\mu s$ , Duty Cycle  $\leq 2.0\%$



### Typical Performance Characteristics

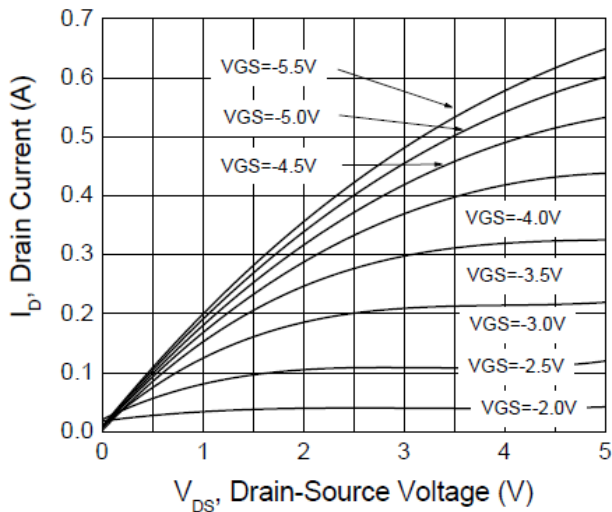


Figure 1. Output Characteristics

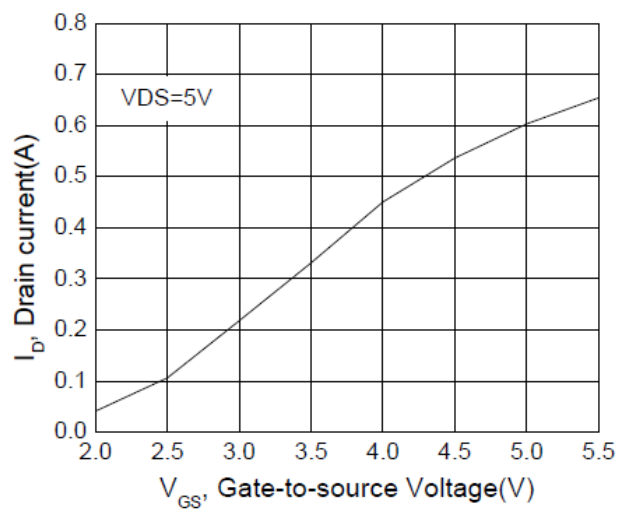


Figure 2. Transfer Characteristics

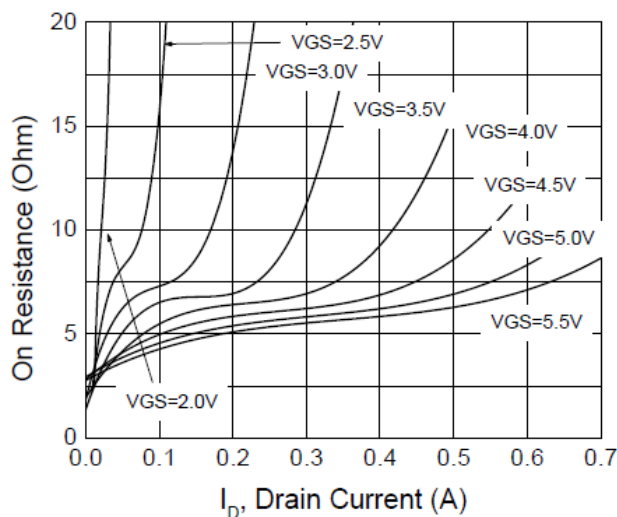


Figure 3. On Resistance VS  $I_d$

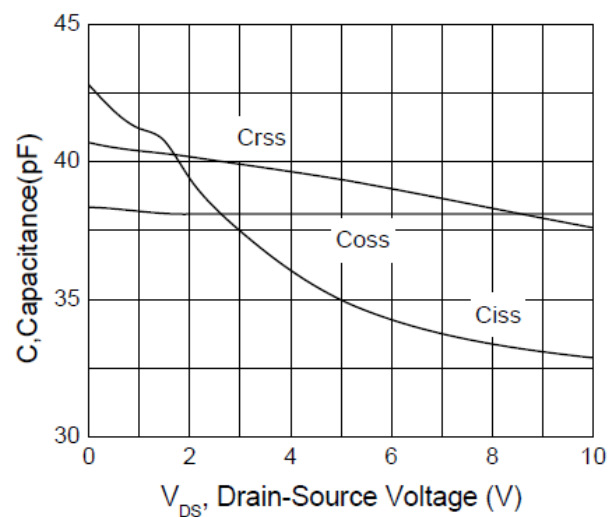


Figure 4. Capacitance

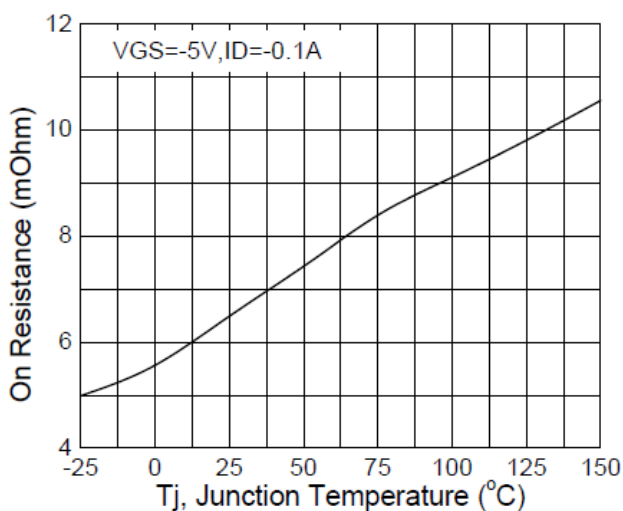


Figure 5. On Resistance Vs. Temperature

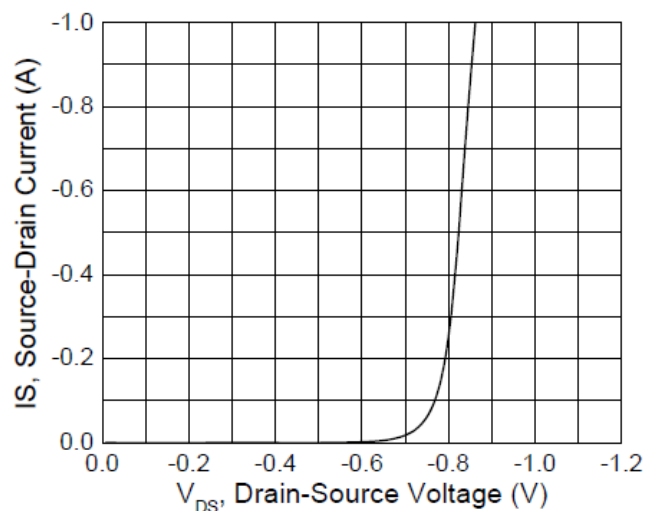
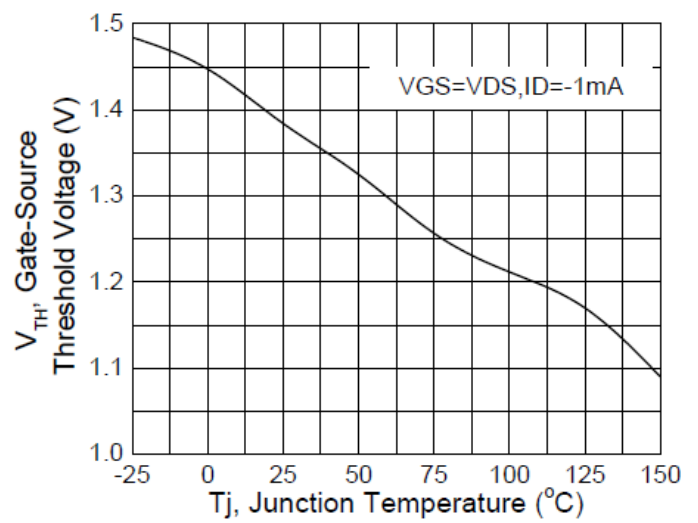
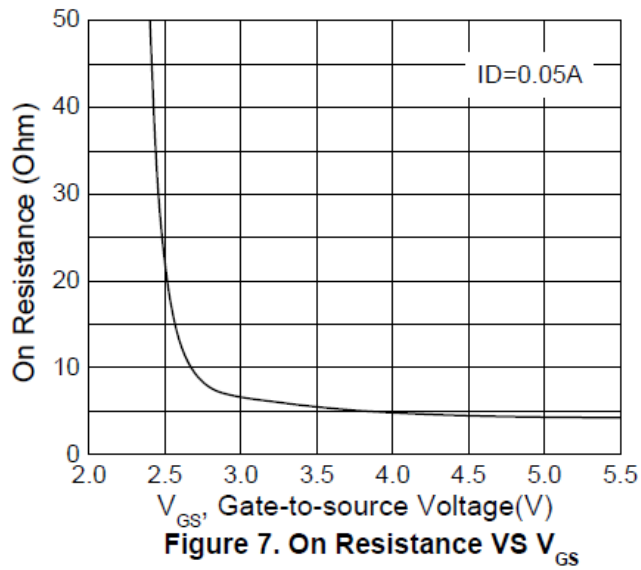


Figure 6. Source-Drain Diode Forward Voltage



### Typical Performance Characteristics



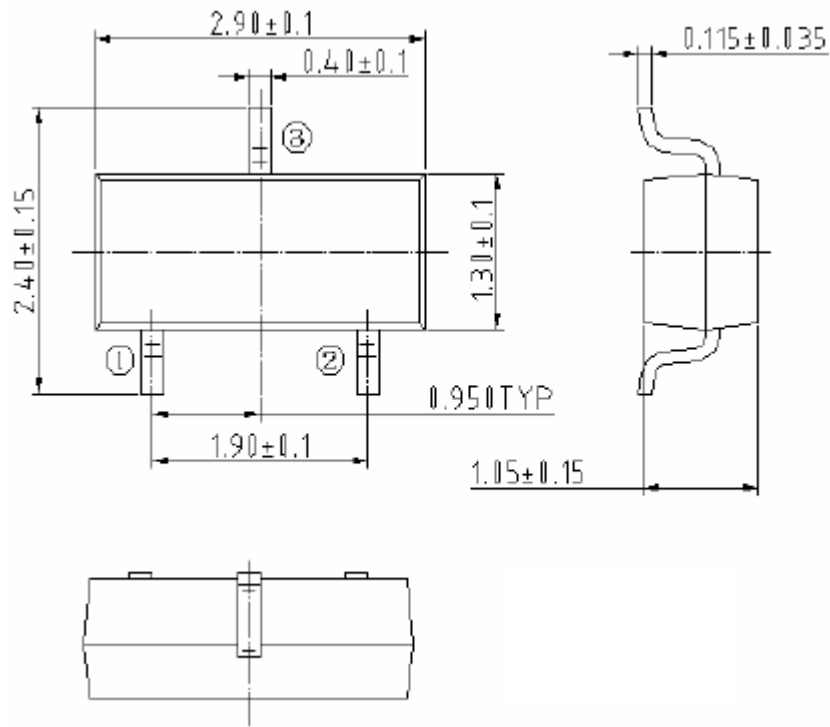


# ACE1522B

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### Packing Information

#### SOT-23-3



Unit: 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.

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