ACE1522B

P-Channel Enhancement Mode Field Effect Transistor

Description

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

Features

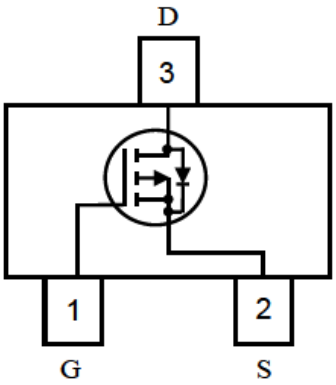
- V_{DS}(V)=-50V, ID=-0.13A
- $R_{DS(ON)}$＜10Ω@V_{GS}=-5V
- Voltage controlled p-channel small signal switch
- High density cell design for low $R_{DS(ON)}$

Absolute Maximum Ratings

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

Packaging Type

SOT-23-3



Ordering information

ACE1522B XX + H

- Halogen - free
- Pb - free
- BM : SOT-23-3

Electrical Characteristics

T_A=25 °C unless otherwise noted

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
On/Off characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=-250uA	-50			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-50V, V_{GS}=0V			-15	uA
		V_{DS}=-50V, V_{GS}=0V, T_J=125℃			-60	
Gate Leakage Current	I_{GSS}	V_{GS}=±20V, V_{DS}=0V			±10	nA
On characteristics [b]						
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=-5V, I_D=-0.1A			10	Ω
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=-1mA	-0.8	-1.75	-2	V
Forward Transconductance	g_{FS}	V_{DS}=-25V, I_D=-0.1A	0.05	0.6		S
Switching characteristics [b]						
Total Gate Charge	Q_g	V_{DS}=-25V, I_D=-0.1A V_{GS}=-5V		0.9	1.3	nC
Gate-Source Charge	Q_{gs}			0.2		
Gate-Drain Charge	Q_{gd}			0.3		
Turn-On Delay Time	$T_{d(on)}$	V_{DD}=-30V, I_D=-0.27A, V_{GS}=-10V R_{GEN}=6Ω		2.5	5	ns
Turn-On Rise Time	t_f			6.3	13	
Turn-Off Delay Time	$t_{d(off)}$			10	20	
Turn-Off Fall Time	t_f			4.8	9.6	
Dynamic characteristics						
Input Capacitance	C_{iss}	V_{DS}=-10V, V_{GS}=0V f=200KHz		33		pF
Output Capacitance	C_{oss}			38		
Reverse Transfer Capacitance	C_{rss}			36		
Gate Resistance	R_G	V_{GS}=-15mV, f=1.0MHz		9		Ω
Drain-source diode characteristics and maximum ratings [b]						
Drain-Source Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_S=-0.26A [(2)]		-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 ≤ 300μs, Duty Cycle ≤ 2.0%

Typical Performance Characteristics

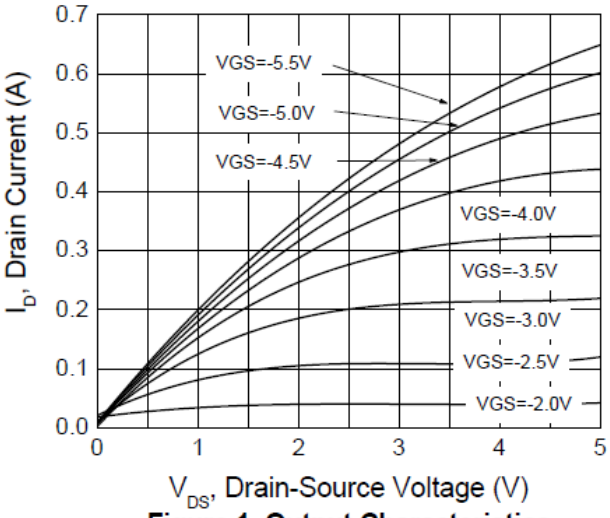


Figure 1. Output Characteristics

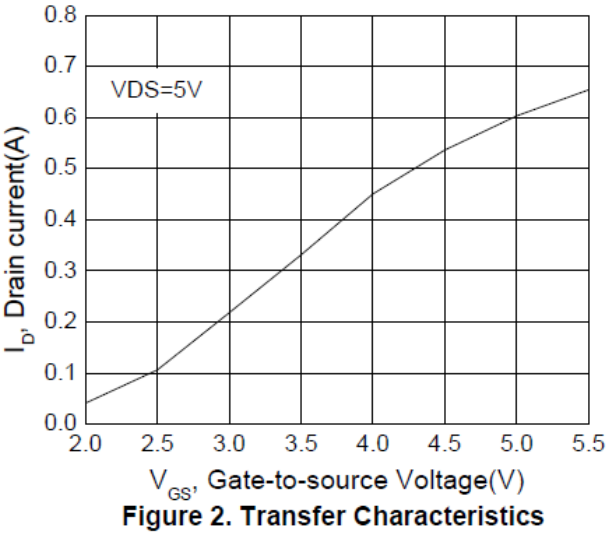


Figure 2. Transfer Characteristics

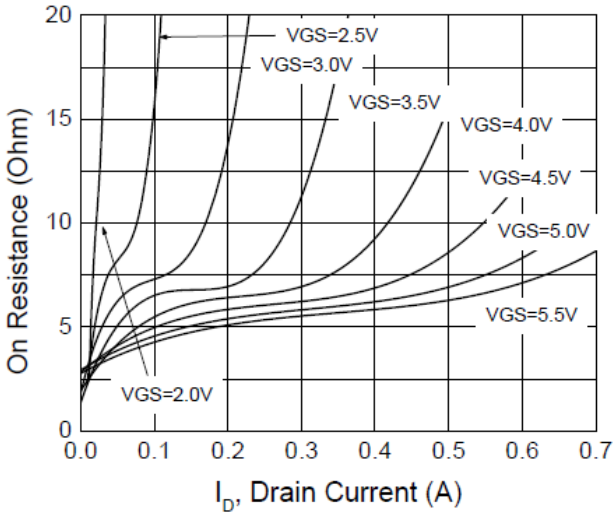


Figure 3. On Resistance VS I_d

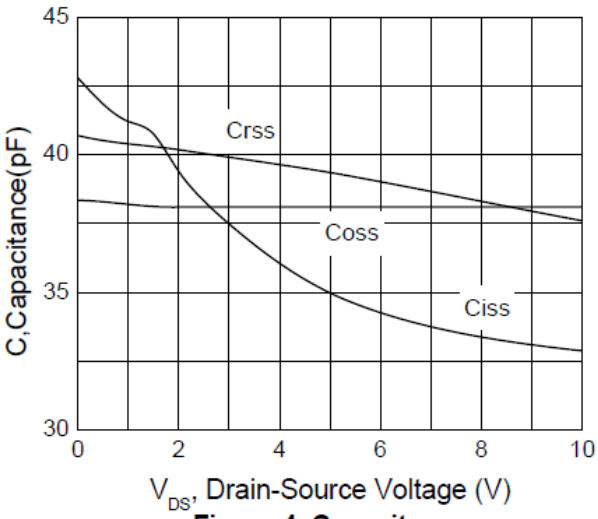


Figure 4. Capacitance

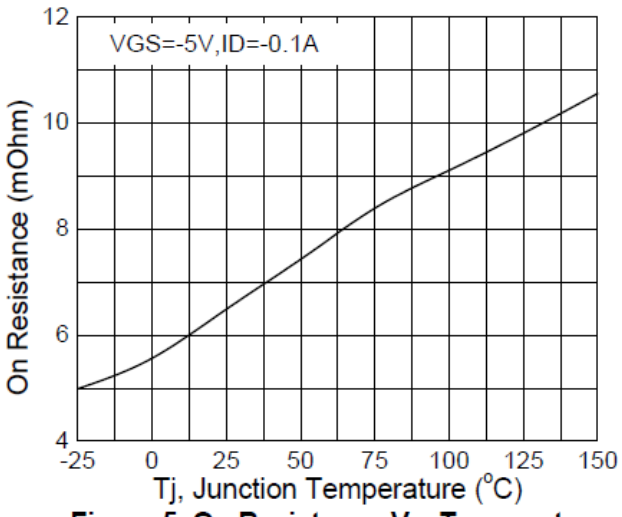


Figure 5. On Resistance Vs. Temperature

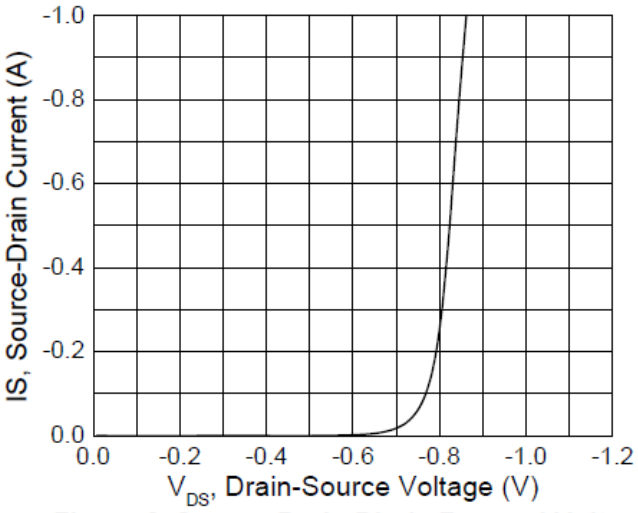


Figure 6. Source-Drain Diode Forward Voltage

Typical Performance Characteristics

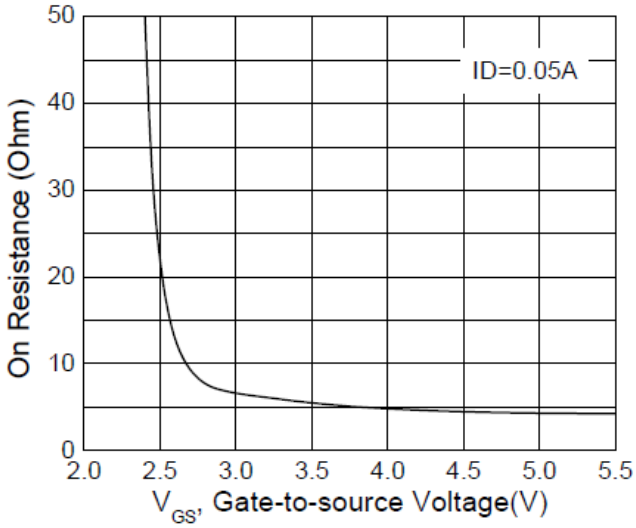


Figure 7. On Resistance VS V_{GS}

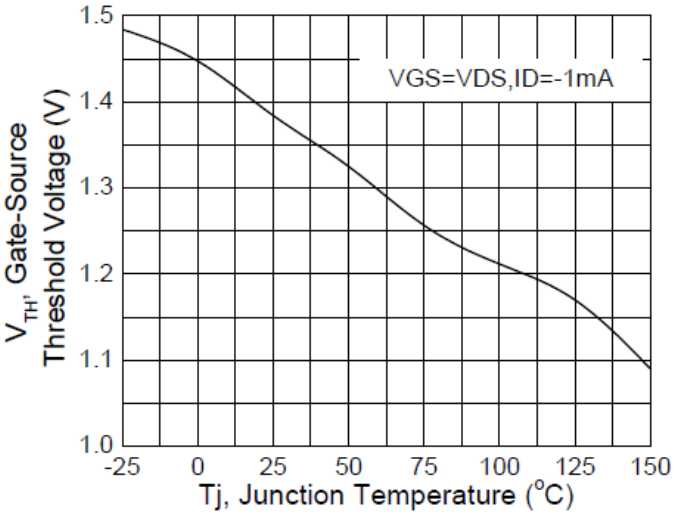
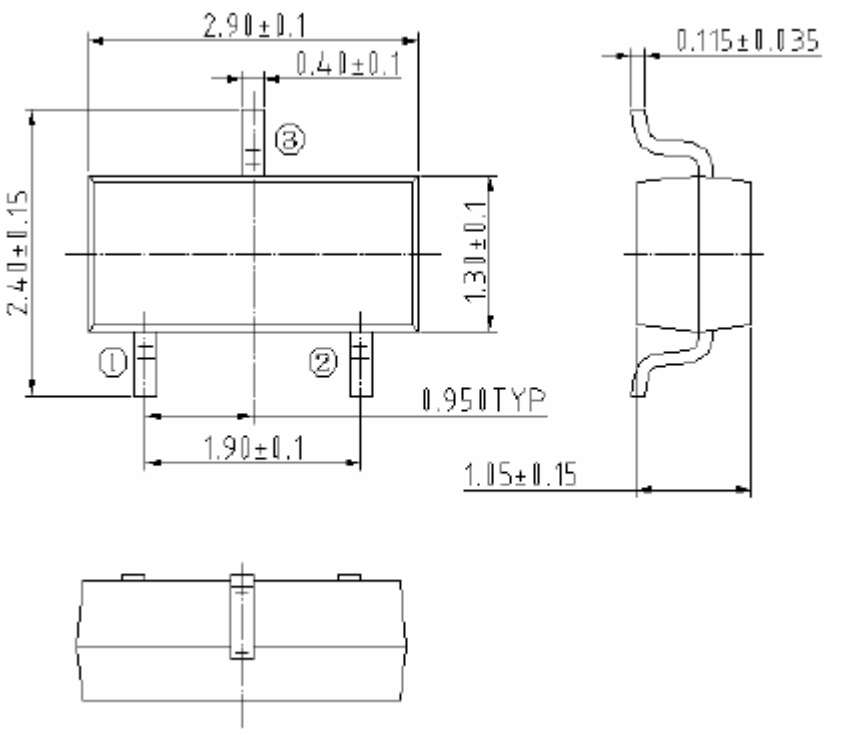


Figure 8. Gate Thershold Vs. Temperature

Packing Information

SOT-23-3



Unit: mm

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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