ACE7403B

N-Channel Enhancement Mode Power MOSFET

Description

ACE7403B uses advanced trench technology and desgin to provide excellent $R_{DS(ON)}$ with low gate charge. It can be used in a wide variety of applications.

Features

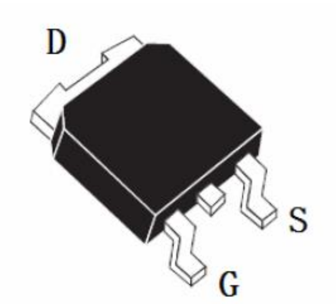
- V_{DS}= 30V, I_D= 50A
- $R_{DS(ON)1}$@V_{GS}= 10V, I_{DS}=25A,TYP 8mΩ
- $R_{DS(ON)2}$@V_{GS}= 5V, I_{DS}=20A,TYP 10mΩ

Absolute Maximum Ratings @TA=25℃ unless otherwise noted

Parameter		Symbol	Ratings	Unit
Drain-Source Voltage		V_{DSS}	30	V
Gate-Source Voltage		V_{GSS}	±20	V
Drain Current (Continuous) *AC	TA=25°C	I_D	50	A
	TA=100°C		35	
Drain Current (Pulse) *B		I_{DM}	140	A
Power Dissipation	TA=25°C	P_D	60	W
Operating Temperature/ Storage Temperature		T_J/T_{STG}	-55~175	°C

Packaging Type

TO-252



Ordering information

ACE7403BXX + H

Halogen - free

Pb - free

YM：TO-252

Electrical Characteristics @T_A=25℃ unless otherwise noted

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D= 250μ A	30	33		V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 30V, V_{GS}=0V			1	μA
Gate Threshold Voltage	$V_{GS(TH)}$	V_{GS} = V_{DS}, I_{DS}= 250μ A	0.8	1.1	1.4	V
Gate Leakage Current	I_{GSS}	V_{GS}=±20V, V_{DS}=0V			±100	nA
Drain-Source On-state Resistance	$R_{DS(on)}$	V_{GS} = 10V, I_D = 20A		8	11	mΩ
		V_{DS}= 5V, I_D= 20A		10	16	
Forward Transconductance	g_{FS}	V_{DS}= 5V, I_D= 20A	15			S
Diode Forward Voltage	V_{SD}	I_{SD}= 25A , V_{GS}=0V		0.85	1.2	V
Diode Forward Current	I_S				50	A
Switching						
Total Gate Charge	Q_g	V_{DS}=10V,I_D=25 V_{GS}=10V		23		nC
Gate-Source Charge	Q_{gs}			7		nC
Gate-Drain Charge	Q_{gd}			4.5		nC
Turn-on Delay Time	$td_{(on)}$	V_{DD}=15V,V_{GS}=10V, R_G=1.8Ω, I_D=20A		10		ns
Turn-on Rise Time	t_r			8		ns
Turn-off Delay Time	$t_{d(off)}$			30		ns
Turn-Off Fall Time	t_f			5		ns
Dynamic						
Input Capacitance	C_{iss}	V_{DS}=15V,V_{GS}=0V, f=1.0MHz		2000		pF
Output Capacitance	C_{oss}			280		pF
Reverse Transfer Capacitance	C_{rss}			160		pF

A: The value of $R_{\theta JA}$ is measured with the device mounted on 1in^2 FR-4 board with 2oz. Copper, in a still air environment with TA=25°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≤ 10s junction to ambient thermal resistance rating.

Typical Performance Characteristic

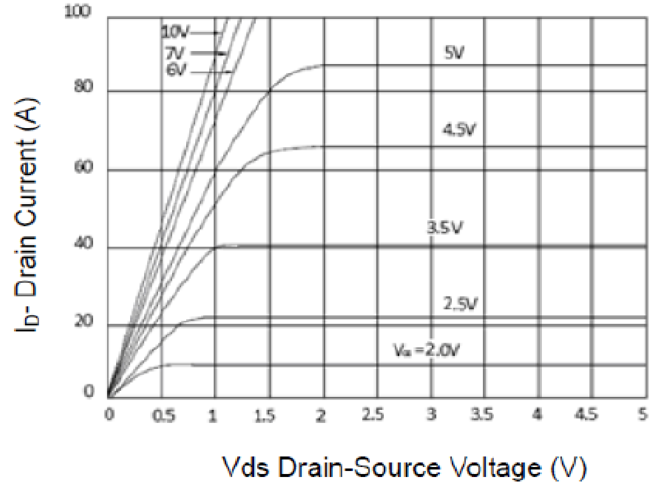


Figure 1 Output Characteristics

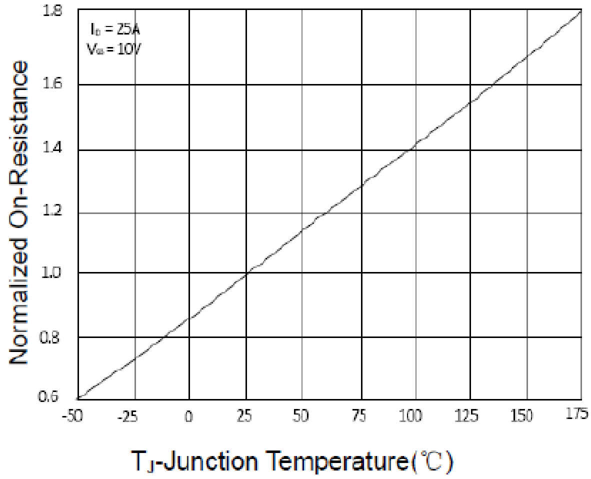


Figure 4 Rdson-JunctionTemperature

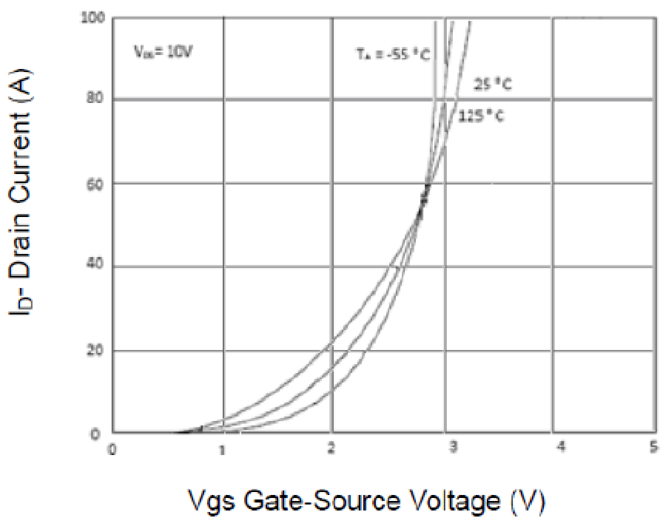


Figure 2 Transfer Characteristics

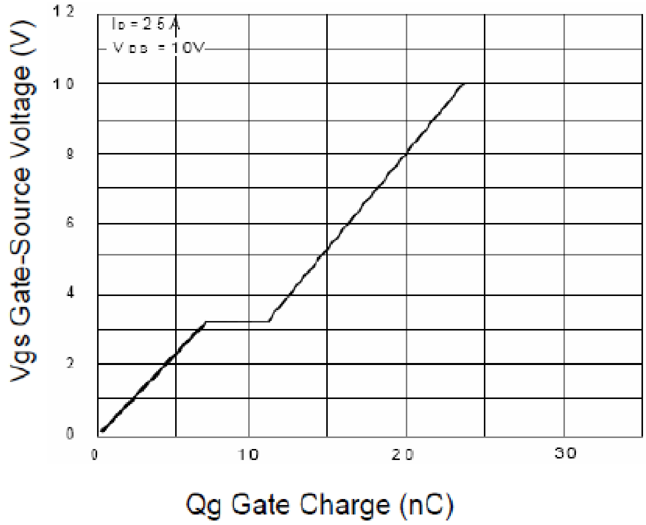


Figure 5 Gate Charge

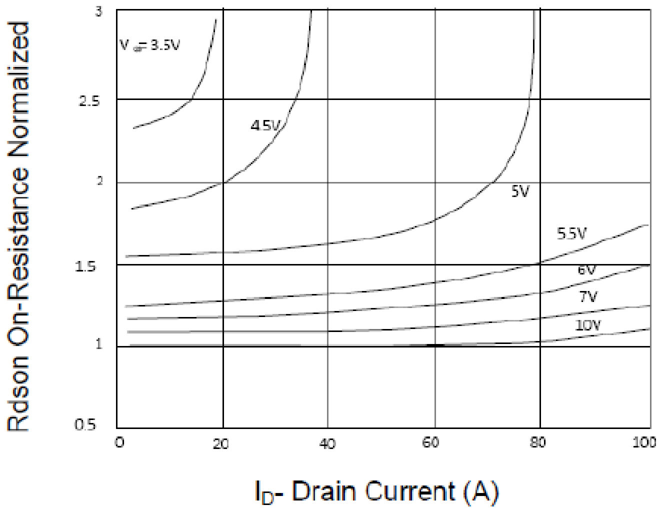


Figure 3 Rdson- Drain Current

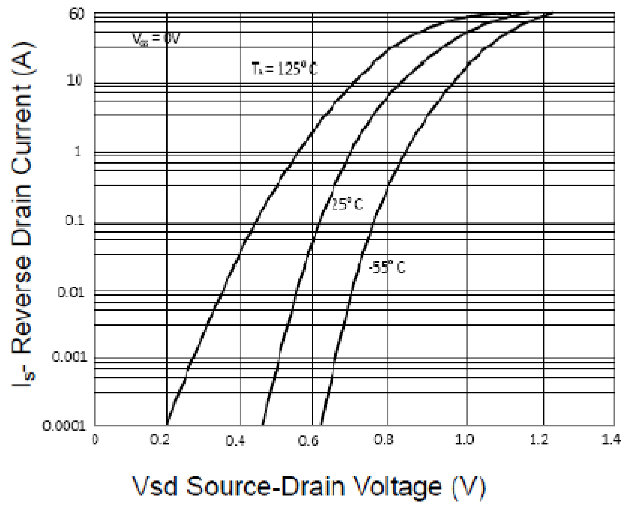


Figure 6 Source- Drain Diode Forward

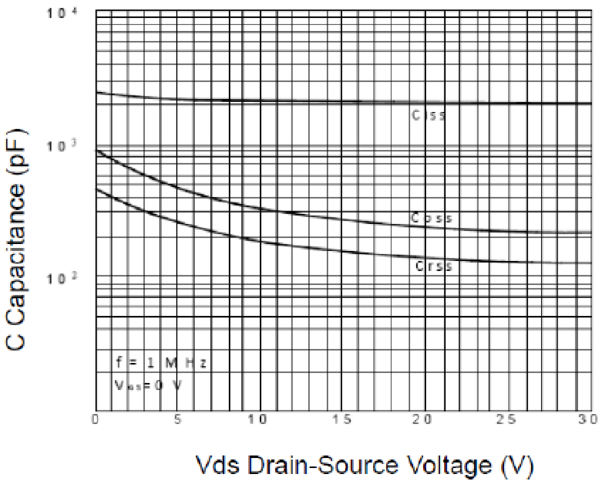


Figure 7 Capacitance vs Vds

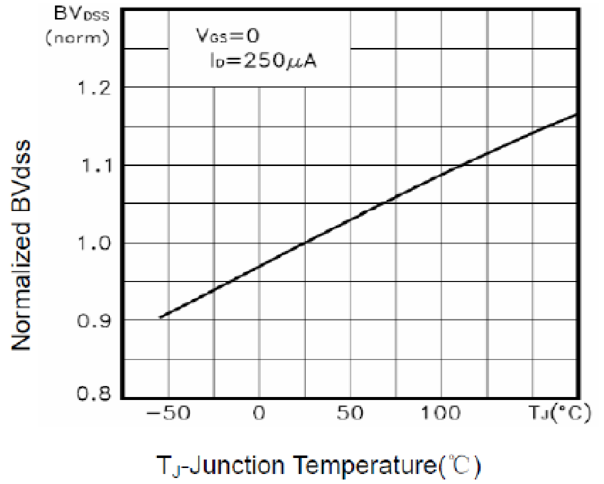


Figure 9 BV_{DSS} vs Junction Temperature

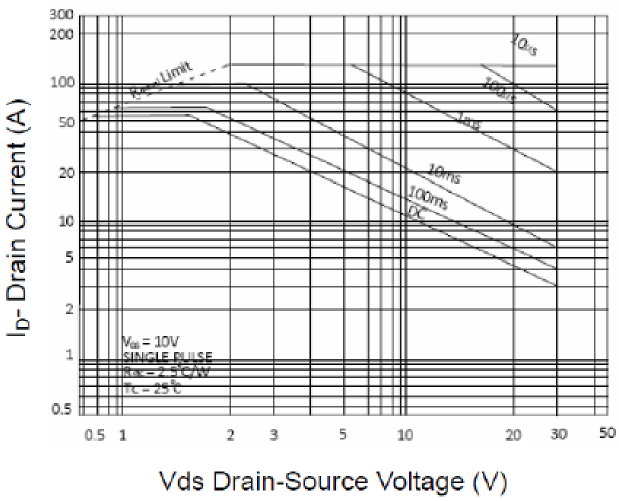


Figure 8 Safe Operation Area

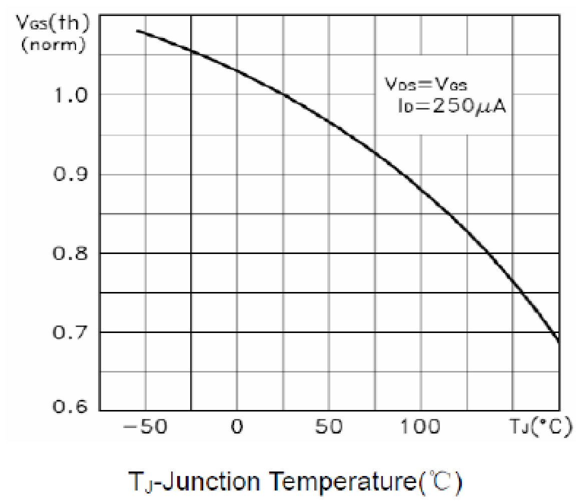


Figure 10 $V_{GS(th)}$ vs Junction Temperature

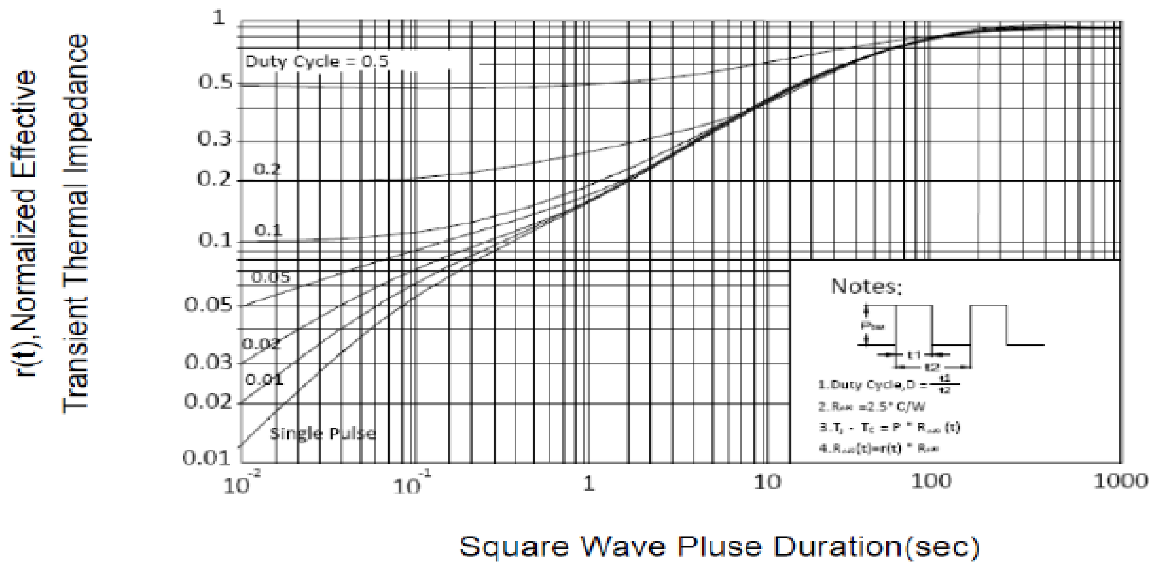
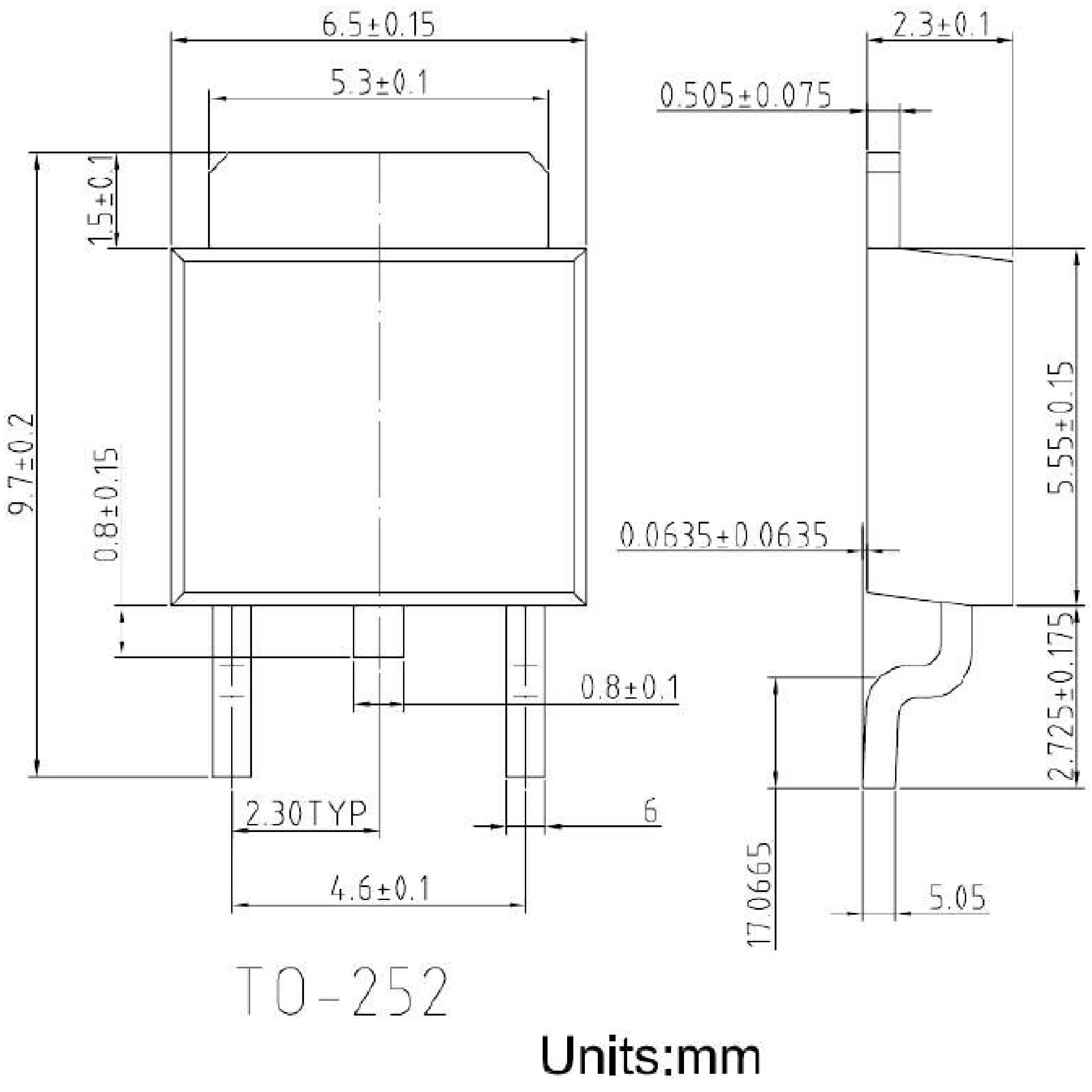


Figure 11 Normalized Maximum Transient Thermal Impedance

Packing Information

TO-252



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.