ACE7332M

N-Channel 30-V (D-S) MOSFET

Description

The ACE7332M uses advanced trench technology to provide excellent $R_{DS(ON)}$ and low gate charge. This device is suitable for use as a load switch or in PWM applications. The source leads are separated to allow a kelvin connection to the source, which may be used to bypass the source inductance.

Key Features

- Low $r_{DS(on)}$ trench technology
- Low thermal impedance
- Fast switching speed

PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (mΩ)	I_D(A)
30	13 @ V_{GS} = 10V	14
	18 @ V_{GS} = 4.5V	12

Features

- V_{DS}(V)=30V
- I_D=15A (V_{GS}=10V)
- $R_{DS(ON)}$＜8.5mΩ (V_{GS}=10V)
- $R_{DS(ON)}$＜13mΩ (V_{GS}=4.5V)

Absolute Maximum Ratings

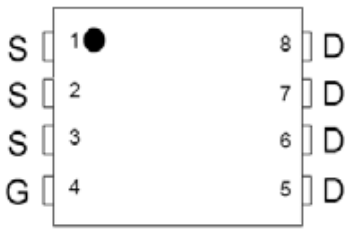
Parameter		Symbol	Max	Unit
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Voltage		V_{GS}	±20	V
Drain Current (Continuous) *AC	T_A=25°C	I_D	15	A
	T_A=70°C		12	
Drain Current (Pulse) *B		I_{DM}	50	
Power Dissipation	T_A=25°C	P_D	3.5	W
	T_A=70°C		2	
Operating and Storage Temperature Range		T_J,T_{stg}	-55 to 150	°C

THERMAL RESISTANCE RATINGS

Parameter		Symbol	Max	Unit
Maximum Junction-to-Ambient [a]	t <= 10 sec	$R_{\theta JA}$	35	°C/W
	Steady State		81	

Packaging

DFN3x3-8L



TypeOrdering information

ACE7332M XX + H

- Halogen - free
- Pb - free
- NN : DFN3*3-8L

Electrical Characteristics

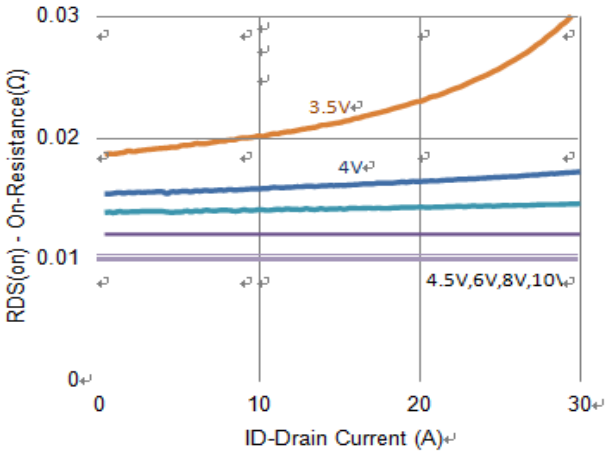
Parameter	Symbol	Conditions	Min.	Typ.	Max	Unit
Static						
Gate-Source Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250 uA	1			V
Gate-Body Leakage	I_{GSS}	V_{DS} = 0 V, V_{GS} = ±20V			±100	nA
Zero ate Voltage Drain Current	I_{DSS}	V_{DS} = 24 V, V_{GS} = 0 V			1	uA
		V_{DS} = 24 V, V_{GS} = 0 V, T_J = 55℃			25	
On-State Drain Current[a]	$I_{D(on)}$	V_{DS} = 5 V, V_{GS} = 10 V	20			A
Drain-Source On-Resistance[a]	$R_{DS(ON)}$	V_{GS} = 10 V, I_D = 11 A			13	mΩ
		V_{GS} = 4.5 V, I_D =8.8A			18	
Forward Transconductance[a]	g_{FS}	V_{DS} =15 V, I_D = 11 A		25		S
Diode Forward Voltage[a]	V_{SD}	I_S = 2.6A, V_{GS} = 0 V		0.74		V
Dynamic [b]						
Total Gate Charge	Q_g	V_{DS} = 15 V, V_{GS} = 4.5 I_D =11 A		25		nC
Gate-Source Charge	Q_{gs}			11		
Gate-Drain Charge	Q_{gd}			17		
Turn-On Delay Time	$t_{d(on)}$	V_{DS} = 15 V, R_L = 1.4 Ω, I_D = 11 A, V_{GEN} = 10 V, R_{GEN} = 6 Ω		15		ns
Rise Time	t_r			13		
Turn-Off Delay Time	$t_{d(off)}$			100		
Fall Time	t_f			54		
Input Capacitance	C_{iss}	V_{DS} = 15 V, V_{GS} = 0 V, f = 1 MHz		1456		pF
Output Capacitance	C_{oss}			231		
Reverse Transfer Capacitance	C_{rss}			198		

Note:

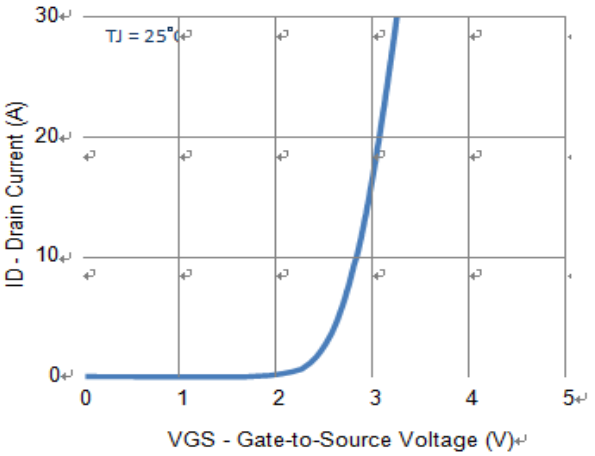
a. Pulse test: PW <= 300us duty cycle <= 2%.

b. Guaranteed by design, not subject to production testing

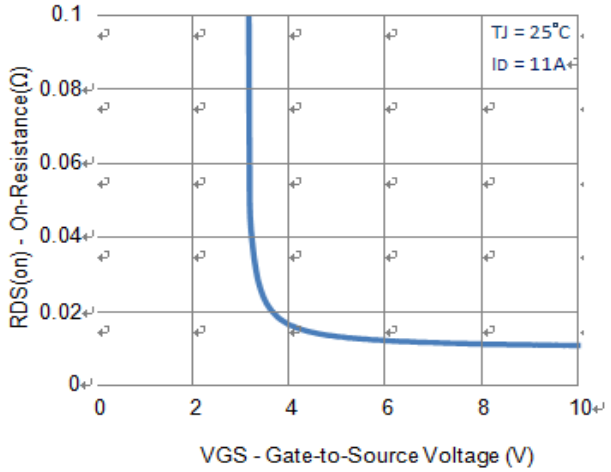
Typical Performance Characteristics



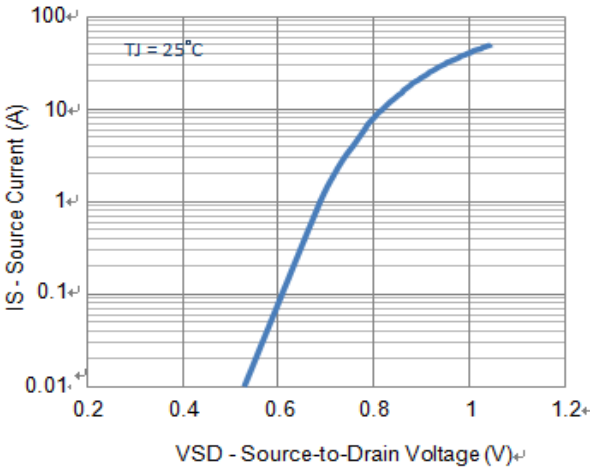
1. On-Resistance vs. Drain Current



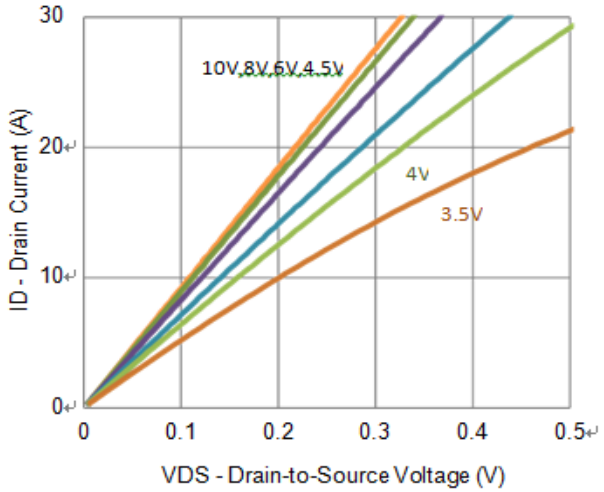
2. Transfer Characteristics



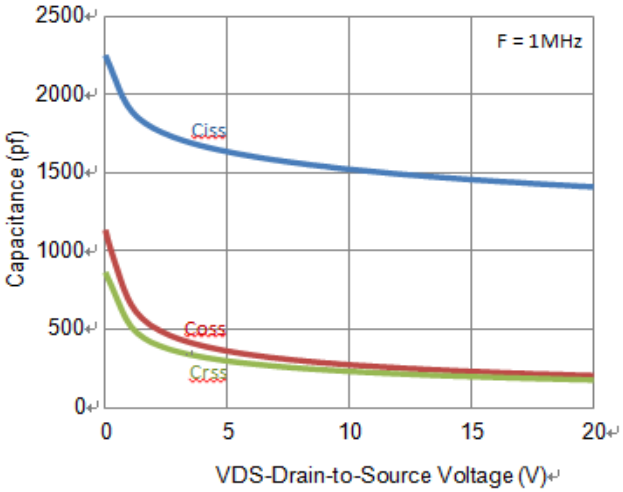
3. On-Resistance vs. Gate-to-Source Voltage



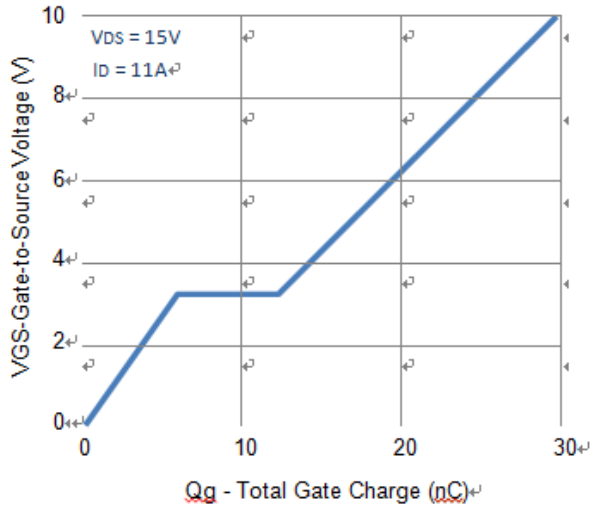
4. Drain-to-Source Forward Voltage



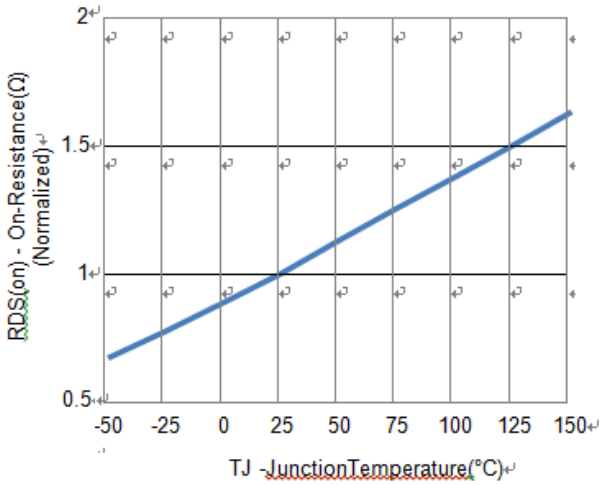
5. Output Characteristics



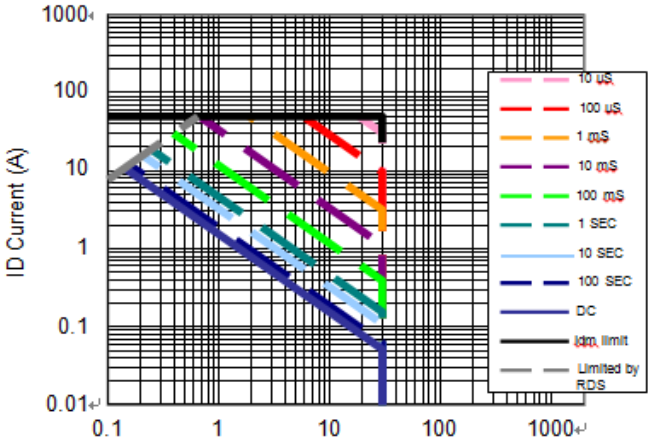
6. Capacitance



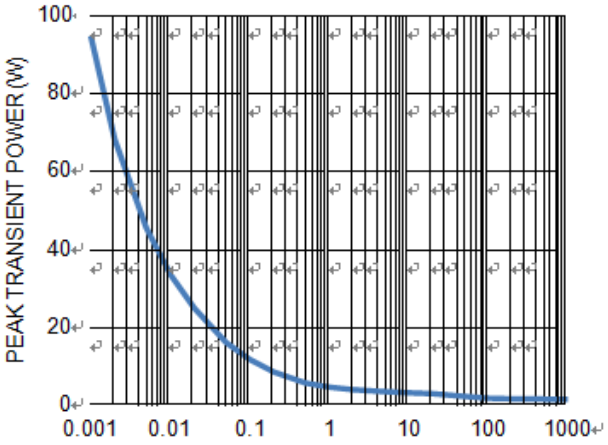
7. Gate Charge



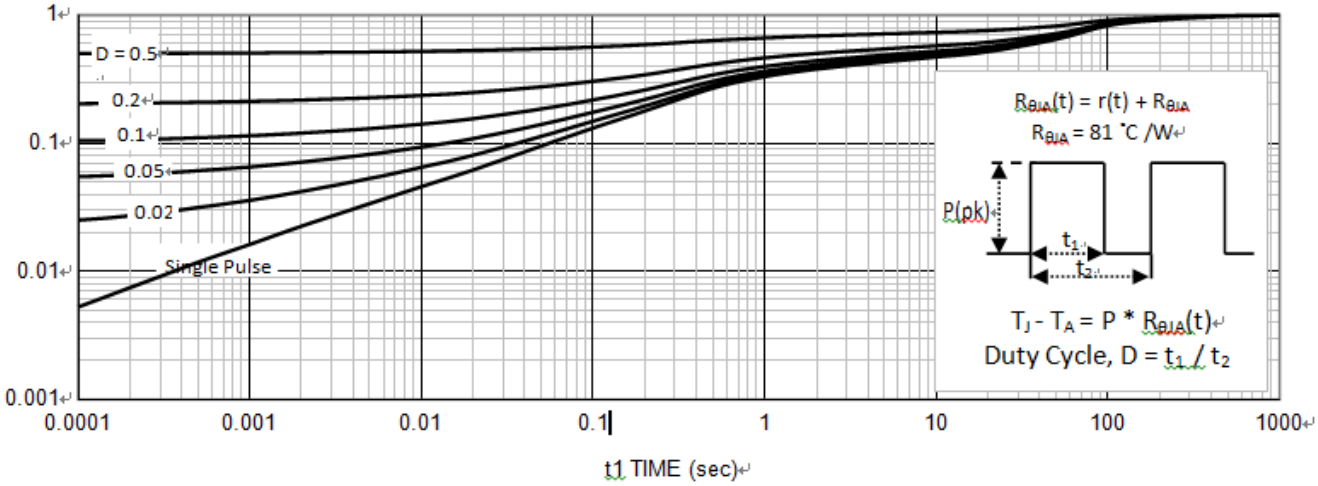
8. Normalized On-Resistance Vs Junction Temperature



9. Safe Operating Area



10. Single Pulse Maximum Power Dissipation



11. Normalized Thermal Transient Junction to Ambient

Packing Information

DFN3*3-8L

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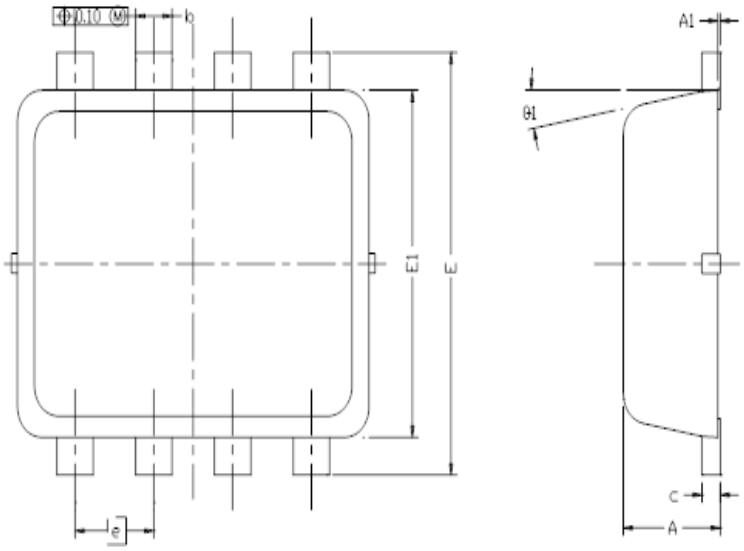

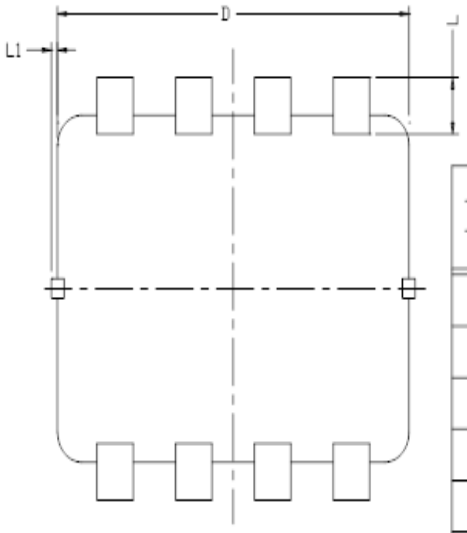

Unit: mm

DIM.	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.700	0.80	0.900	0.0276	0.0315	0.0354
A1	0.00	---	0.05	0.000	---	0.002
b	0.24	0.30	0.35	0.009	0.012	0.014
c	0.08	0.152	0.25	0.003	0.006	0.010
D	2.90 BSC			0.114 BSC		
E	2.80 BSC			0.110 BSC		
E1	2.30 BSC			0.091 BSC		
e	0.65 BSC			0.026 BSC		
L	0.20	0.375	0.450	0.008	0.0148	0.0177
L1	0	---	0.100	0	---	0.004
θ1	0	10	12	0	10	12

Notes

ACE does not assume any responsibility for use as critical components in life support devices or systems without the express written approval of the president and general counsel of ACE Electronics Co., LTD. As sued herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, and shoes failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in a significant injury to the user.
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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