ACE2010M

P-Channel -100V MOSFET

Description

The ACE2010 miniature surface mount MOSFETs utilize a high cell density trench process to provide low $r_{DS(on)}$ and to ensure minimal power loss and heat dissipation. Typical applications are DC-DC converters and power management in portable and battery-powered products such as computers, printers, PCMCIA cards, cellular and cordless telephones.

Features

- Low $r_{DS(on)}$ provides higher efficiency and extends battery life
- Low thermal impedance copper leadframe DPAK saves board space
- Fast switching speed
- High performance trench technology

Absolute Maximum Ratings

Parameter		Symbol	Limit	Unit
Drain-Source Voltage		V_{DS}	-100	V
Gate-Source Voltage		V_{GS}	±20	
Continuous Drain Current	T_C=25°C	I_D	11	A
Pulsed Drain Current [b]		I_{DM}	±40	A
Continuous Source Current (Diode Conduction) [a]		I_S	-15	A
Power Dissipation	T_C=25°C	P_D	50	W
Operating Junction and Storage Temperature Range		T_J, T_{stg}	-55 to 175	°C

THERMAL RESISTANCE RATINGS

Parameter	Symbol	Maximum	Unit
Maximum Junction-to-Ambient [a]	$R_{\theta JA}$	50	°C/W
Maximum Junction-to-Case	$R_{\theta JC}$	3.0	

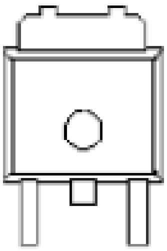
Notes

a. Surface Mounted on 1” x 1” FR4 Board.

b. Pulse width limited by maximum junction temperature

Packaging Type

TO-252



G D S

Ordering information

ACE2010M <u>YM</u> + H

- H: Halogen - free
- +: Pb - free
- YM : TO252

Electrical Characteristics

T_A=25℃, unless otherwise specified.

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} = ±20 V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = -80 V, V_{GS} = 0 V			-1	uA
		V_{DS} = -80 V, V_{GS} = 0 V, T_J = 55℃			-10	
On-State Drain Current	$I_{D(on)}$	V_{DS} =- 5 V, V_{GS} = -10 V	-20			A
Drain-Source On-Resistance	$r_{DS(on)}$	V_{GS} = -10 V, I_D = -1 A			295	mΩ
		V_{GS} = -4.5 V, I_D = -1 A			590	
Forward Transconductance	g_{fs}	V_{DS} = -15 V, I_D = -28 A		8		S
Diode Forward Voltage	V_{SD}	I_S = -2.5A, V_{GS} = 0 V		-0.7		V
Dynamic						
Total Gate Charge	Q_g	V_{DS} = -30 V, V_{GS} = -4.5 V, I_D = -28 A		18		nC
Gate-Source Charge	Q_{gs}			5		
Gate-Drain Charge	Q_{gd}			2		
Turn-On Delay Time	$t_{d(on)}$	V_{DD} = -30 V, R_L = 30 Ω , I_D = -1 A V_{GEN} = -10 V, R_{GEN} = 6 Ω		8		nS
Rise Time	t_r			10		
Turn-Off Delay Time	$t_{d(off)}$			35		
Fall Time	t_f			12		

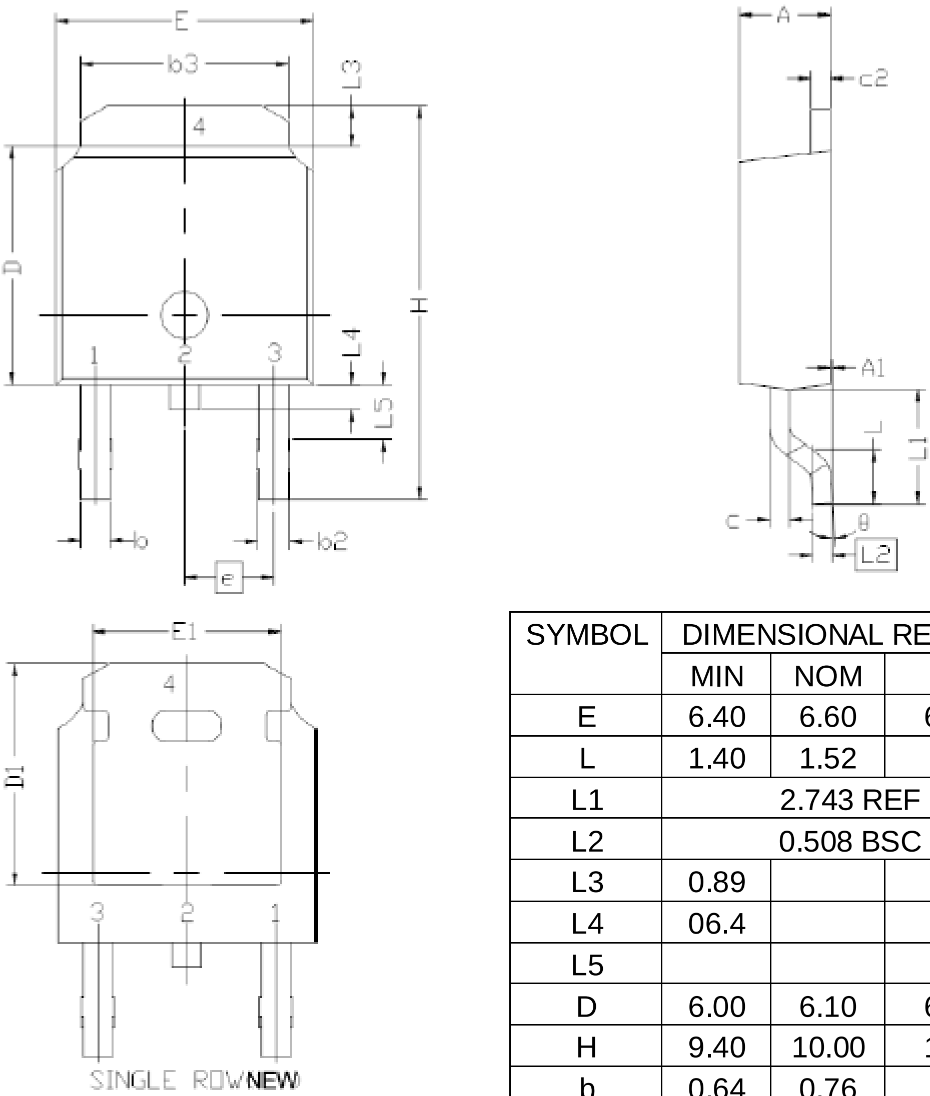
Note:

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

b. Guaranteed by design, not subject to production testing.

Packing Information

TO-252



SYMBOL	DIMENSIONAL REQMTS		
	MIN	NOM	MAX
E	6.40	6.60	6.731
L	1.40	1.52	1.77
L1	2.743 REF		
L2	0.508 BSC		
L3	0.89		1.27
L4	06.4		1.01
L5			
D	6.00	6.10	6.223
H	9.40	10.00	10.40
b	0.64	0.76	0.88
b2	0.77	0.84	1.14
b3	5.21	5.34	5.46
e	2.286 BSC		
A	2.20	2.30	2.38
A1	0		0.127
c	0.45	0.50	0.60
c2	0.45	0.50	0.58
D1	5.30		
E1	4.40		
θ	0 ◦		10 ◦

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.

ACE Technology Co., LTD.
http://www.ace-ele.com/