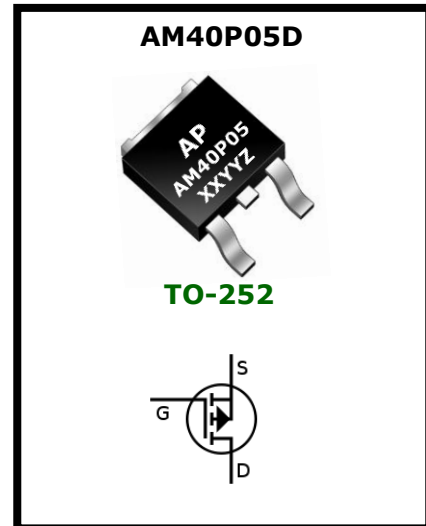


50V 40A Advanced P-Ch Power MOSFET

Characteristics Summary

Characteristics	Values	Units
V_{DS}	-50	V
$R_{DS(ON)}$, $V_{GS}@-10V, I_{DS}@-40A$	23	m Ω
$R_{DS(ON)}$, $V_{GS}@-4.5V, I_{DS}@-20A$	28	m Ω



Features

- Advanced trench process technology.
- High Density Cell Design For Ultra Low On-Resistance.

Maximum Ratings Characteristics

($T_A = 25^\circ\text{C}$ unless otherwise specified)

Characteristic		Symbol	Rating	Unit
Drain-source voltage		V_{DS}	-50	V
Gate-source voltage		V_{GS}	± 20	V
Drain current (DC)		I_D	-40	A
Drain current (Pulsed) ¹		I_{DM}	-40	A
Power Dissipation	$T_A = 25^\circ\text{C}$	P_D	3.1	W
	$T_A = 75^\circ\text{C}$		2	
Junction-to-Ambient Thermal Resistance(PCB mounted) ²		θ_{JA}	7.6	mJ
Operating Junction and Storage temperature range		T_J, T_{stg}	-55~150	$^\circ\text{C}$

Note : 1. Repetitive Rating : Pulse width limited by the maximum junction temperature

2. 1-in² 2oz Cu PCB board



Electrical Characteristics

(TA = 25°C unless otherwise specified)

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS} = 0V, I_D = -250\mu A$	-50			V
Drain-Source On-State Resistance	$R_{DS(ON)}$	$V_{GS} = -10V, I_D = -40A$		19.0	23.0	mΩ
		$V_{GS} = -4.5V, I_D = -20A$		21.0	28.0	
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-1	-1.58	-3	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -50V, V_{GS} = 0V$			-1	μA
Gate Body Leakage	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$			± 100	nA
Dynamic ³						
Total Gate Charge	Q_g	$V_{DS} = -30V, I_D = -0.1A$ $V_{GS} = -4.5V$		36.69		nC
Gate-Source Charge	Q_{gs}			7.70		
Gate-Drain Charge	Q_{gd}			12.77		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = -30V, R_G = 3\Omega$ $I_D = -1A, V_{GEN} = -10V$		18.50		ns
Turn-On Rise Time	t_r			12.73		
Turn-Off Delay Time	$t_{d(off)}$			214.3		
Turn-Off Fall Time	t_f			96.95		
Input Capacitance	C_{iss}	$V_{DS} = -30V, V_{GS} = -0V$ $f = 200kHz$		4105		pF
Output Capacitance	C_{oss}			267.5		
Reverse Transfer Capacitance	C_{rss}			228.0		
Source-Drain Diode						
Max. Diode Forward Current	I_S					A
Diode Forward Voltage	V_{SD}	$I_S = -1A, V_{GS} = 0V$			-1	V

Note : Pulse test : pulse width ≤ 300μs, duty cycle ≤ 2%

3. Guaranteed by design; not subject to production testing.

Ordering Information

Part No	Package	Packing	Finish	Halogen	Packing Unit
AM40P05D	TO-252	Reel & Tape	Sn	Free	2,500ea

Marking Layout



1ST Line : Company logo

2nd Line : Date code

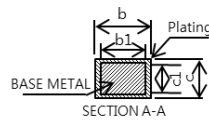
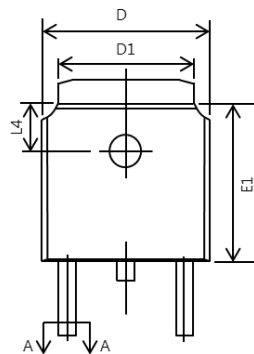
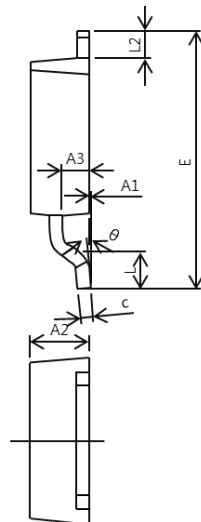
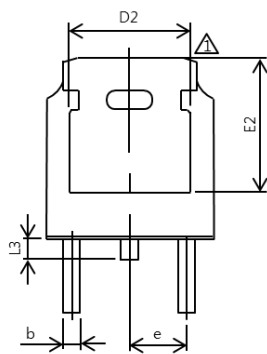
- YY : Last two digit of calendar year
- WW : Work week calendar

3rd Line : Device name + PKG CODE

-D: TO-252 PKG code

Package Dimensions

TO-252



SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A1	0	—	0.10
A2	2.2	2.3	2.4
A3	1.02	1.067	1.12
b	0.75	—	0.84
b1	0.74	—	0.79
c	0.49	—	0.57
c1	0.48	0.508	0.52
D	6.50	6.60	6.70
D1	5.334REF		
D2	4.70	4.826	4.92
E	9.90	10.10	10.30
E1	6.00	6.10	6.20
E2	5.30REF		
e	2.286BSC		
L	1.40	1.50	1.60
L2	0.90	—	1.25
L3	0.60	0.80	1.00
L4	1.70	1.80	1.90
Θ	0		8°
L/F	198×133		

Revision History

No	Date	Contents
0	2017-03-29	Initial Brief Datasheet Release

<http://www.apsemi.com>

IMPORTANT NOTICE

AP Semiconductor co, Ltd reserves the right to make changes without further notice to any products or specifications herein. AP Semiconductor co, Ltd does not assume any responsibility for use of any its products for any particular purpose, nor does AP Semiconductor co, Ltd assume any liability arising out of the application or use of any its products or circuits. AP Semiconductor co, Ltd does not convey any license under its patent rights or other rights nor the rights of others.

AP Semiconductor Co., Ltd

Contact. **Tel** 82.70.4693.2299 **FAX** 82.70.4000.4009

E-mail: sales@apsemi.com

© 2015 AP semiconductor Co., Ltd. –Printed in KOREA –All Rights Reserved.