

P-Channel 40V MOSFET
FEATURES

- Advance Trench Process Technology
- High Density Cell Design for Ultra Low On-resistance

Application

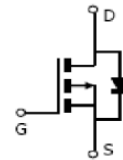
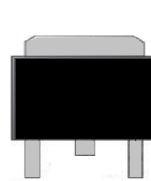
- Portable Devices
- Consumer Electronics

Mechanical

- Case: TO-252 Package

PRODUCTY SUMMARY

V_{DS}	$R_{DS(on)}$ m(Ω)	
-40	17	@ $V_{GS} = -10V$
	25	@ $V_{GS} = -4.5V$

TO-252

P-Channel MOSFET
Packing Information

Package	Packing
TO-252	2.5K/13" Reel

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

Parameter	Symbol	Limit	Unit
DrainSource Voltage	V_{DS}	-40	V
GateSource Voltage	V_{GS}	± 20	V
Continuous Drain Current ¹⁾	I_{DSM}	-20	A
Continuous Drain Current ⁴⁾	I_D	-43	A
Continuous Drain Current ⁵⁾	I_{DM}	-90	A
Maximum Power Dissipation	P_D	50	W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 to 150	$^\circ\text{C}$

Typical Thermal Resistance

Parameter	Symbol	Limit	Unit
JunctiontoAmbient Thermal Resistance ³⁾	$R_{\theta JA}$	65	$^\circ\text{C/W}$

Note:

1. Pulse width < 300us, Duty cycle < 2%.
2. Fused current that based on wire numbers and diameter.
3. Guaranteed by design, not subject to production testing.
4. The maximum current rating is package limited.
5. Repetitive rating, pulse width limited by junction temperature $T_{J(MAX)} = 150^\circ\text{C}$. Ratings are based on low frequency and duty cycles to keep initial $T_J = 25^\circ\text{C}$.

Electrical Characteristics (T _A = 25°C UNLESS OTHERWISE NOTED)						
Characteristics	Symbol	Test Condition	Limits			Unit
			Min	Typ	Max	
Static						
DrainSource Breakdown Voltage	B _{VDSS}	V _{GS} =0V, I _D =-250uA	-40	-	-	V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250uA	-1.00	-1.60	-2.50	V
DrainSource OnState Resistance	R _{DS(on)}	V _{GS} =-10V, I _D =-20A	-	12	17	mΩ
		V _{GS} =-4.5V, I _D =-20A	-	16	25	mΩ
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-40V, V _{GS} =0V	-	-	-1	uA
GateSource Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V	-	-	±100	nA

Dynamic ³⁾						
Total Gate Charge	Q _g	V _{DS} =-15V, V _{GS} =-10V, I _D =-1.5A	-	67.9	-	nC
Total Gate Charge	Q _g	V _{DS} =-15V, V _{GS} =-4.5V, I _D =-27A (Note 1,2)	-	33.6	-	nC
Gate-Source Charge	Q _{gs}		-	6.1	-	nC
Gate-Drain Charge	Q _{gd}		-	14.4	-	nC
Input Capacitance	C _{iss}	V _{DS} =-15V, V _{GS} =0V, f=200KHz	-	3497	-	pF
Output Capacitance	C _{oss}		-	339	-	pF
Reverse Transfer Capacitance	C _{rss}		-	295	-	pF

Switching						
Turn-On Delay Time	t _{d(on)}	V _{DS} =-15V, R _{load} =10Ohm, V _{gen} =-10V, R _g =3Ohm	-	3.65	-	ns
Turn-On Rise Time	t _r		-	22.49	-	ns
Turn-Off Delay Time	t _{d(off)}		-	84.07	-	ns
Turn-Off Fall Time	t _f		-	16.51	-	ns

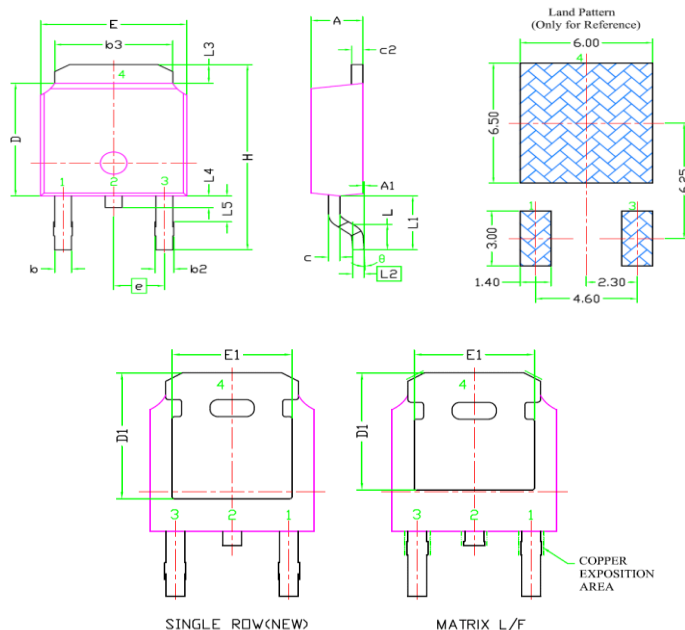
DrainSource Diode						
Maximum Continuous Body Diode Forward Current	I _S	-	-	-	-1.2	A
Diode Forward Voltage	V _{SD}	I _S =-1.0A, V _{GS} =0V	-	-	-1.5	V

Note:

1. Pulse width<300us, Duty cycle<2%.
2. Essentially independent of operating temperature typical characteristics.
3. Repetitive rating, pulse width limited by junction temperature T_{J(MAX)}=150°C. Ratings are based on low frequency and duty cycles to keep initial T_J =25°C.
4. The maximum current rating is package limited.
5. R_{QJA} 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. Mounted on a 1 inch2 with 2oz.square pad of copper.
6. Guaranteed by design, not subject to production testing.

Package Outline Dimensions (inches and millimeters)

TO-252				
SYMBOL	Dimensions			
	Millimeters		Inches	
	Min	Max	Min	Max
E	6.40	6.73	0.252	0.265
L	1.40	1.77	0.055	0.070
L1	2.743 REF			
L2	0.508BSC			
L3	0.89	1.27	0.035	0.050
L4	0.64	1.01	0.025	0.040
L5	-	-	-	-
D	6.00	6.22	0.236	0.245
H	9.40	10.40	0.370	0.409
b	0.64	0.88	0.025	0.035
b2	0.77	1.14	0.030	0.045
b3	5.21	5.46	0.205	0.215
e	2.286BSC			
A	2.20	2.38	0.087	0.094
A1	0.00	0.13	0.000	0.005
c	0.46	0.60	0.018	0.024
c2	0.46	0.58	0.018	0.023
D1	5.21	-	0.205	-
E1	4.40	-	0.173	-
Θ	0°	10°	0°	10°



Marking Information



First line = Company name

AAAAAAA = Product number

XXXXXXX = Tracking number

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