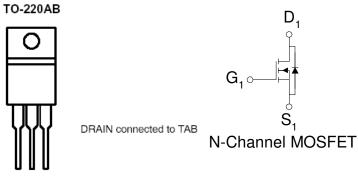
## N-Channel 30-V (D-S) MOSFET

These 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, and cordless telephones.

•	Low $r_{DS(on)}$ provides higher efficiency and
	extends battery life

- Low thermal impedance copper leadframe TO-220 saves board space
- Fast switching speed
- High performance trench technology

PRODUCT SUMMARY			
V <sub>DS</sub> (V)	$r_{DS(on)} m(\Omega)$	$I_{D}(A)$	
30	$8 @ V_{GS} = 10V$	90°a	
30	$12 @ V_{GS} = 4.5V$	90	



Ton	Miou
100	VIEV

ABSOLUTE MAXIMUM RATINGS (T <sub>A</sub> = 25 °C UNLESS OTHERWISE NOTED)					
Parameter			Limit	Units	
Drain-Source Voltage			30	V	
Gate-Source Voltage			±20		
Continuous Drain Current <sup>a</sup>	T <sub>C</sub> =25°C	$I_D$	90		
Pulsed Drain Current <sup>b</sup>		$I_{DM}$	240	A	
Continuous Source Current (Diode Conduction) <sup>a</sup>		$I_S$	90	A	
Power Dissipation <sup>a</sup>	T <sub>C</sub> =25°C	$P_{\mathrm{D}}$	300	W	
Operating Junction and Storage Temperature Range		T <sub>J</sub> , T <sub>stg</sub>	-55 to 175	°C	

THERMAL RESISTANCE RATINGS					
Parameter	Symbol	Maximm	Units		
Maximum Junction-to-Ambient <sup>a</sup>	R <sub>0JA</sub>	62.5	°C/W		
Maximum Junction-to-Case	$R_{ heta JC}$	0.5	°C/W		

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## Notes

- a. Package Limited
- b. Pulse width limited by maximum junction temperature

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_	Symbol	Test Conditions	Limits			
Parameter			Min	Тур	Max	Unit
Static						
Gate-Threshold Voltage	V <sub>GS(th)</sub>	$V_{DS} = V_{GS}, I_D = 250 \mathrm{uA}$	1			V
Gate-Body Leakage	Igss	$V_{DS} = 0 \text{ V}, V_{GS} = 20 \text{ V}$			±100	nA
Zana Cata Valta da Duain Cumunt	_	$V_{DS} = 24 \text{ V}, V_{GS} = 0 \text{ V}$			1	uA
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = 24 \text{ V}, V_{GS} = 0 \text{ V}, T_J = 55^{\circ}\text{C}$			25	
On-State Drain Current <sup>A</sup>	I <sub>D(on)</sub>	$V_{DS} = 5 \text{ V}, V_{GS} = 10 \text{ V}$	120			A
- · · · · · · · · · · · · · · · · · · ·		$V_{GS} = 10 \text{ V}, I_{D} = 3 \text{ A}$			8	mΩ
Drain-Source On-Resistance <sup>A</sup>	fDS(on)	$V_{GS} = 4.5 \text{ V}, I_{D} = 2 \text{ A}$			12	
Forward Tranconductance <sup>A</sup>	gfs	$V_{DS} = 15 \text{ V}, I_{D} = 3 \text{ A}$		30		S
Diode Forward Voltage	$V_{\mathrm{SD}}$	$I_S = 3 \text{ A}, V_{GS} = 0 \text{ V}$		1.1		V
Dynamic <sup>b</sup>						
Total Gate Charge	Qg	$V_{DS} = 15 \text{ V}, V_{GS} = 4.5 \text{ V},$ $I_{D} = 3 \text{ A}$		19		nC
Gate-Source Charge	$Q_{gs}$			6		
Gate-Drain Charge	$Q_{gd}$			9		
Turn-On Delay Time	t <sub>d(on)</sub>			14		
Rise Time	t <sub>r</sub>	$V_{DD}$ = 25 V, $R_L$ = 25 $\Omega$ , $I_D$ = 3 A,		21		nS
Turn-Off Delay Time	td(off)	$V_{GEN} = 10 \text{ V}$		50		11.5
Fall-Time	tf			31		ĺ

## Notes

- a. Pulse test:  $PW \le 300$ us duty cycle  $\le 2\%$ .
- b. Guaranteed by design, not subject to production testing.

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## Package Information

