

FDN5632N_F085

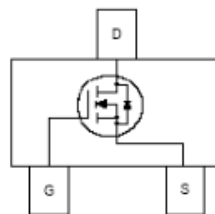
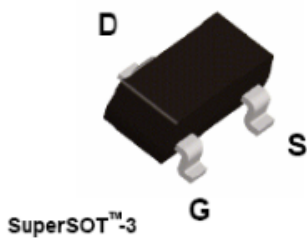
N-Channel Logic Level PowerTrench[®] MOSFET 60V, 1.6A, 98mΩ

Features

- $R_{DS(on)} = 98m\Omega$ at $V_{GS} = 4.5V$, $I_D = 1.6A$
- $R_{DS(on)} = 82m\Omega$ at $V_{GS} = 10V$, $I_D = 1.7A$
- Typ $Q_{g(TOT)} = 9.2nC$ at $V_{GS} = 10V$
- Low Miller Charge
- Qualified to AEC Q101
- RoHS Compliant

Applications

- DC/DC converter
- Motor Drives



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MOSFET Maximum Ratings $T_A = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Rated	Units
V_{DSS}	Drain to Source Voltage	60	V
V_{GS}	Gate to Source Voltage	± 20	V
I_D	Drain Current Continuous ($V_{GS} = 10\text{V}$)	1.7	A
	Pulsed	10	
P_D	Power Dissipation	1.1	W
T_J, T_{STG}	Operating and Storage Temperature	-55 to +150	$^\circ\text{C}$

Thermal Characteristics

$R_{\theta JC}$	Thermal Resistance Junction to Case	75	$^\circ\text{C/W}$
$R_{\theta JA}$	Thermal Resistance Junction to Ambient TO-252, 1in ² copper pad area	111	$^\circ\text{C/W}$

Package Marking and Ordering Information

Device Marking	Device	Package	Reel Size	Tape Width	Quantity
5632	FDN5632N_F085	SSOT3	7"	8mm	3000 units

Electrical Characteristics $T_A = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
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Off Characteristics

B_{VDSS}	Drain to Source Breakdown Voltage	$I_D = 250\mu\text{A}, V_{GS} = 0\text{V}$	60	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS} = 48\text{V}, V_{GS} = 0\text{V}$	-	-	1	μA
		$T_A = 125^\circ\text{C}$	-	-	250	
I_{GSS}	Gate to Source Leakage Current	$V_{GS} = \pm 20\text{V}$	-	-	± 100	nA

On Characteristics

$V_{GS(th)}$	Gate to Source Threshold Voltage	$V_{GS} = V_{DS}, I_D = 250\mu\text{A}$	1	2.0	3	V
$r_{DS(on)}$	Drain to Source On Resistance	$I_D = 1.7\text{A}, V_{GS} = 10\text{V}$	-	57	82	m Ω
		$I_D = 1.6\text{A}, V_{GS} = 6\text{V}$	-	62	88	
		$I_D = 1.6\text{A}, V_{GS} = 4.5\text{V}$	-	70	98	
		$I_D = 1.7\text{A}, V_{GS} = 10\text{V}, T_A = 150^\circ\text{C}$	-	107	135	

Dynamic Characteristics

C_{iss}	Input Capacitance	$V_{DS} = 15\text{V}, V_{GS} = 0\text{V}, f = 1\text{MHz}$	-	475	-	pF	
C_{oss}	Output Capacitance		-	60	-	pF	
C_{rfs}	Reverse Transfer Capacitance		-	30	-	pF	
R_G	Gate Resistance	$f = 1\text{MHz}$	-	1.4	-	Ω	
$Q_{g(TOT)}$	Total Gate Charge at 10V	$V_{GS} = 0$ to 10V	$V_{DD} = 20\text{V}, I_D = 1.7\text{A}$	-	9.2	12	nC
Q_{gs}	Gate to Source Gate Charge			-	1.5	-	nC
Q_{gd}	Gate to Drain "Miller" Charge			-	1.4	-	nC

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Electrical Characteristics $T_A = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
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Switching Characteristics

Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
t_{on}	Turn-On Time	$V_{DD} = 30\text{V}, I_D = 1.0\text{A}$ $V_{GS} = 10\text{V}, R_{GEN} = 6\Omega$	-	-	30	ns
$t_{d(on)}$	Turn-On Delay Time		-	15	-	ns
t_r	Rise Time		-	1.7	-	ns
$t_{d(off)}$	Turn-Off Delay Time		-	5.2	-	ns
t_f	Fall Time		-	1.3	-	ns
t_{off}	Turn-Off Time		-	-	12.9	ns

Drain-Source Diode Characteristics

Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
V_{SD}	Source to Drain Diode Voltage	$I_{SD} = 1.7\text{A}$	-	0.8	1.25	V
		$I_{SD} = 0.85\text{A}$	-	0.8	1.0	
t_{rr}	Reverse Recovery Time	$I_{SD} = 1.7\text{A}, dI_{SD}/dt = 100\text{A}/\mu\text{s}$	-	16.0	21	ns
Q_{rr}	Reverse Recovery Charge		-	7.9	10.3	nC