

N-Channel MOSFET

Lead Free Package and Finish

Applications:

- Adaptor
- Charger
- SMPS

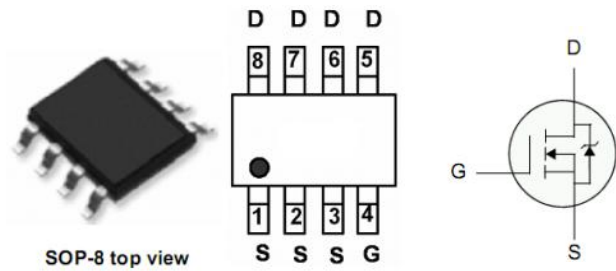
V_{DSS}	$R_{DS(ON)}(Typ.)$	I_D
60V	8mΩ	55A

Features:

- RoHS Compliant
- Low ON Resistance
- Low Gate Charge
- Peak Current vs Pulse Width Curve
- Inductive Switching Curves

Ordering Information

PART NUMBER	PACKAGE	BRAND
FTE10N06NA	SOP-8	IPS



Absolute Maximum Ratings $T_C=25^\circ\text{C}$ unless otherwise specified

Symbol	Parameter	FTE10N06NA	Units
V_{DSS}	Drain-to-Source Voltage	60	V
I_D	Continuous Drain Current	55	A
	Continuous Drain Current $T_C = 100^\circ\text{C}$	8	A
I_{DM}	Pulsed Drain Current, $V_{GS}@10\text{V}$	32	A
P_D	Power Dissipation	2.5	W
	Derating Factor above 25°C	0.02	W/ $^\circ\text{C}$
V_{GS}	Gate-to-Source Voltage	± 20	V
E_{AS}	Single Pulse Avalanche Energy	320	mJ
T_L	Maximum Temperature for Soldering	300	$^\circ\text{C}$
T_J and T_{STG}	Operating Junction and Storage Temperature Range	-55 to 150	

Thermal Resistance

Symbol	Parameter	Typ.	Max.	Units	Test Conditions
$R_{\theta JA}$	Junction-to-Ambient		50	$^\circ\text{C}/\text{W}$	1 cubic foot chamber, free air.

OFF Characteristics $T_C=25^\circ\text{C}$ unless otherwise specified

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
BV_{DSS}	Drain-to-Source Breakdown Voltage	60	--	--	V	$V_{GS}=0V, I_D=250\mu A$
$\Delta BV_{DSS}/\Delta T_J$	Breakdown Voltage Temperature Coefficient,	--	0.71	--	V/ $^\circ\text{C}$	Reference to 25°C , $I_D=250\mu A$
I_{DSS}	Drain-to-Source Leakage Current	--	--	1	μA	$V_{DS}=60V, V_{GS}=0V$ $T_J=25^\circ\text{C}$
		--	--	100		$V_{DS}=48V, V_{GS}=0V$ $T_J=125^\circ\text{C}$
I_{GSS}	Gate-to-Source Forward Leakage	--	--	+100	nA	$V_{GS}=+20V$
	Gate-to-Source Reverse Leakage	--	--	-100		$V_{GS}=-20V$

ON Characteristics $T_J=25^\circ\text{C}$ unless otherwise specified

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
$R_{DS(ON)}$	Static Drain-to-Source On-Resistance	--	8	10	m Ω	$V_{GS}=10V, I_D=4.8A$ (NOTE *4)
$V_{GS(TH)}$	Gate Threshold Voltage	1	--	3	V	$V_{DS}=V_{GS}, I_D=250\mu A$
g_{fs}	Forward Transconductance	--	65	--	S	$V_{DS}=15V, I_D=8A$ (NOTE *4)

Dynamic Characteristics Essentially independent of operating temperature

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
C_{iss}	Input Capacitance	--	4050	--	μF	$V_{GS}=0V, V_{DS}=25V$ $f=1.0MHz$
C_{oss}	Output Capacitance	--	280	--		
C_{rss}	Reverse Transfer Capacitance	--	180	--		
Q_g	Total Gate Charge	--	57	--	nC	$I_D=8A, V_{DD}=30V$ $V_{GS}=10V$
Q_{gs}	Gate-to-Source Charge	--	16	--		
Q_{gd}	Gate-to-Drain ("Miller") Charge	--	13	--		

Resistive Switching Characteristics Essentially independent of operating temperature

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
$t_{d(ON)}$	Turn-on Delay Time	--	21		ns	$V_{DD}=30V, I_D=4A,$ $V_G=10V R_G=9.1\Omega$
t_{rise}	Rise Time	--	27			
$t_{d(OFF)}$	Turn-Off Delay Time	--	63			
t_{fall}	Fall Time	--	30			



Source-Drain Diode Characteristics

$T_c=25^{\circ}\text{C}$ unless otherwise specified

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
I_S	Continuous Source Current (Body Diode)	--	--	8	A	$T_c=25^{\circ}\text{C}$
I_{SM}	Maximum Pulsed Current (Body Diode)	--	--	32	A	
V_{SD}	Diode Forward Voltage	--	--	1.5	V	$I_{SD}=8\text{A}, V_{GS}=0\text{V}$
t_{rr}	Reverse Recovery Time	--	42	45	ns	$I_S=8\text{A},$ $di/dt=100\text{A}/\mu\text{s}$
Q_{rr}	Reverse Recovery Charge	--	85	91	nC	

Notes:

*1. $T_J = +25^{\circ}\text{C}$ to $+150^{\circ}\text{C}$.

*2. Repetitive rating; pulse width limited by maximum junction temperature.

*3. $di/dt < 100\text{ A}/\mu\text{s}$, $V_{DD} < BV_{DSS}$, $T_J=+150^{\circ}\text{C}$.

*4. Pulse width $< 380\mu\text{s}$; duty cycle $< 2\%$.



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