

TIGER ELECTRONIC CO.,LTD

500V N-Channel MOSFET

FQD5N50

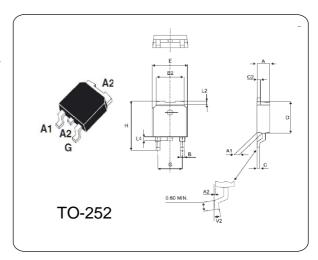
DESCRIPTION

These N-Channel enhancement mode power field effect transistors are produced using Fairchild's proprietary, planar stripe, DMOS technology.

This advanced technology has been especially tailored to minimize on-state resistance, provide superior switching performance, and withstand high energy pulse in the avalanche and commutation mode. These devices are well suited for high efficiency switch mode power supply.

ABSOLUTE MAXIMUM RATINGS (Ta = 25 °C)

Parameter	Symbol	Value	Unit	
Drain-Source Voltage	V _{DSS}	500	V	
Drain Current - Continuous	I _D	3.5	Α	
Drain Current - Pulsed	I _{DM}	14	Α	
Gate-Source Voltage	V _{GSS}	±30	V	
Power Dissipation	P _D	50	W	
Max. Operating Junction Temperature	Tj	150	°C	
Storage Temperature	T _{stg}	-55~150	°C	



ELECTRICAL CHARACTERISTICS (Ta = 25 °C)

Parameter	Symbol	Test Conditions	Min.	Тур.	Max.	Unit
Drain-Source Breakdown Voltage	BV _{DSS}	$V_{GS} = 0V, I_D = 250 \mu A$	500		_	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =500V, V _{GS} =0V			1.0	uA
Gate-Body Leakage Current, Forward	I _{GSSF}	V _{GS} =30V, V _{DS} =0V			100	nA
Gate-Body Leakage Current, Reverse	I _{GSSR}	$V_{GS} = -30V, V_{DS} = 0V$	_	_	-100	nA
Gate Threshold Voltage	V _{GS(th)}	$V_{DS} = V_{GS}$, $I_D = 250 \mu$ A	3.0	_	5.0	V
Static Drain-Source On-Resistance	R _{DS(on)}	$V_{GS} = 10 \text{ V}, I_{D} = 1.75 \text{ A}$			1.8	W
Drain-Source Diode Forward Voltage	V _{SD}	$V_{GS} = 0 \text{ V}, I_{S} = 3.5 \text{ A}$			1.4	V

Typical Characteristics

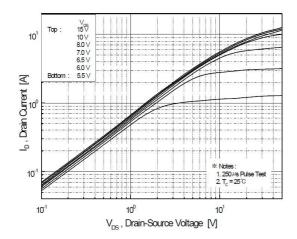


Figure 1. On-Region Characteristics

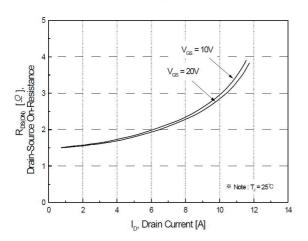


Figure 3. On-Resistance Variation vs. Drain Current and Gate Voltage

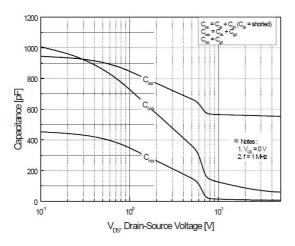


Figure 5. Capacitance Characteristics

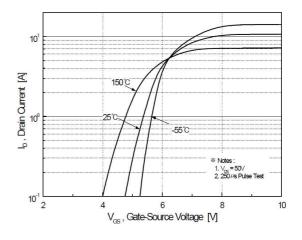


Figure 2. Transfer Characteristics

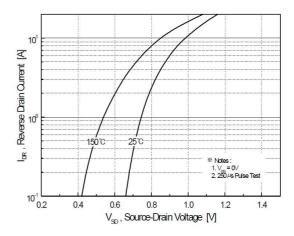


Figure 4. Body Diode Forward Voltage Variation vs. Source Current and Temperature

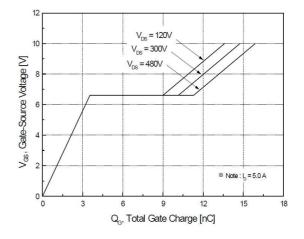


Figure 6. Gate Charge Characteristics