

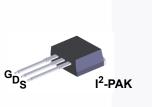
FQI5N60C N-Channel QFET[®] MOSFET 600 V, 4.5 A, 2.5 Ω

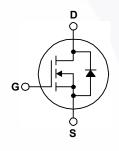
Features

- 4.5 A, 600 V, $R_{DS(on)}$ = 2.5 Ω (Max.) $@V_{GS}$ = 10 V, I_D = 2.1 A
- Low Gate Charge (Typ. 15 nC)
- Low Crss (Typ. 6.5 pF)
- 100% Avalanche Tested

Description

This N-Channel enhancement mode power MOSFET is produced using Fairchild Semiconductor's proprietary planar stripe and DMOS technology. This advanced MOSFET technology has been especially tailored to reduce on-state resistance, and to provide superior switching performance and high avalanche energy strength. These devices are suitable for switched mode power supplies, active power factor correction (PFC), and electronic lamp ballasts.





Absolute Maximum Ratings T_C = 25°C unless otherwise noted.

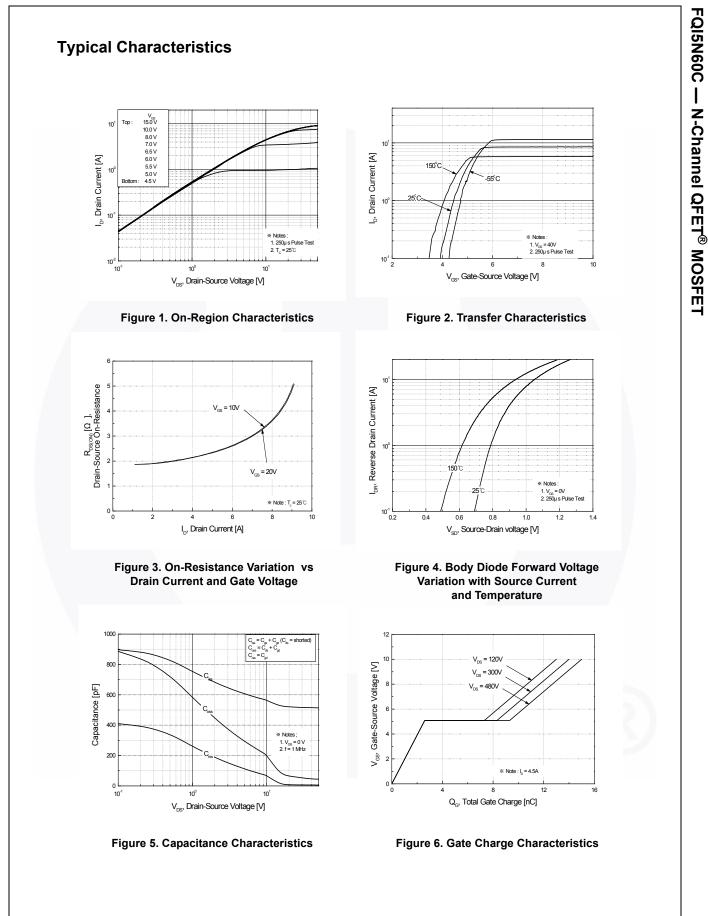
Symbol	Parameter		FQI5N60CTU	Unit
V _{DSS}	Drain-Source Voltage		600	V
I _D	Drain Current - Continuous ($T_C = 25^{\circ}C$)		4.5	A
	- Continuous (T _C = 100°C)		2.6	А
I _{DM}	Drain Current - Pulsed	(Note 1)	18	A
V _{GSS}	Gate-Source Voltage		± 30	V
E _{AS}	Single Pulsed Avalanche Energy (Note		210	mJ
I _{AR}	Avalanche Current	(Note 1)	4.5	A
E _{AR}	Repetitive Avalanche Energy	(Note 1)	10	mJ
dv/dt	Peak Diode Recovery dv/dt (Note 3)		4.5	V/ns
D	Power Dissipation ($T_C = 25^{\circ}C$)		100	W
P _D	- Derate above 25°C		0.8	W/°C
T _J , T _{STG}	Operating and Storage Temperature Range		-55 to +150	°C
Τ _L	Maximum lead temperature for soldering purposes, 1/8" from case for 5 seconds		300	°C

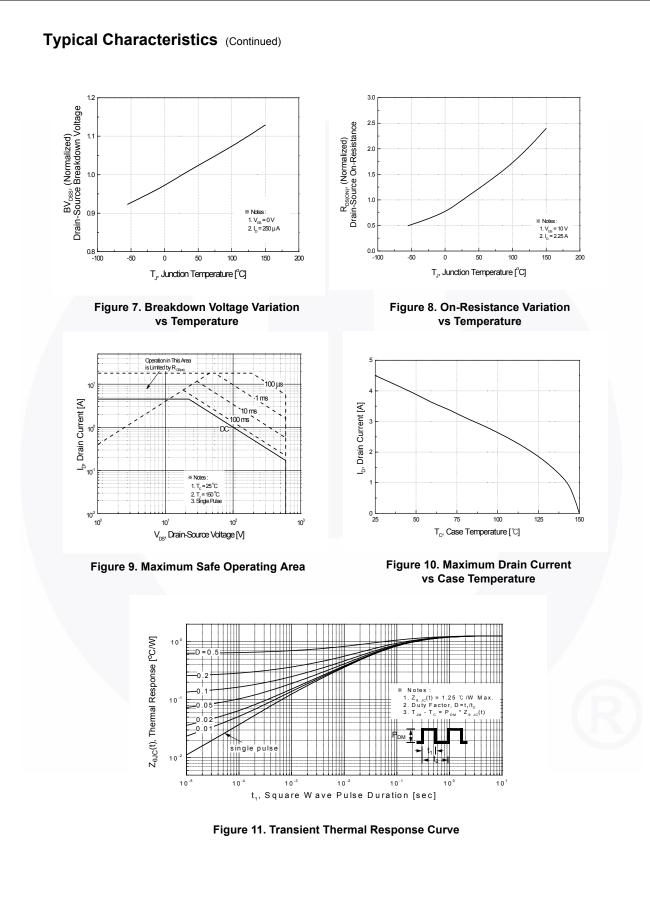
Thermal Characteristics

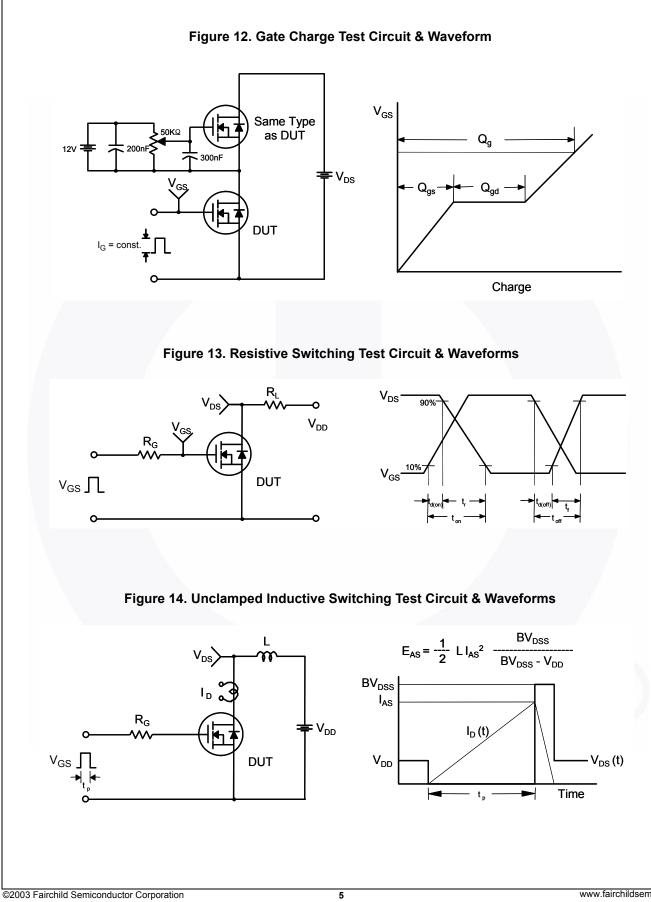
Symbol	Parameter	FQI5N60CTU	Unit	
$R_{ extsf{ heta}JC}$	Thermal Resistance, Junction-to-Case, Max.	1.25	°C/W	
R _{θJA}	Thermal Resistance, Junction-to-Ambient, Max.	62.5	C/ VV	

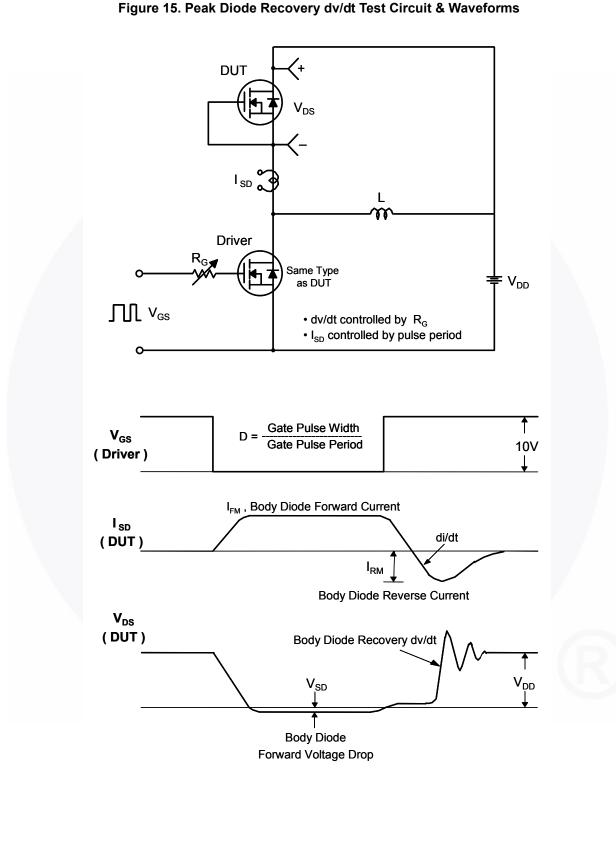
November 2013

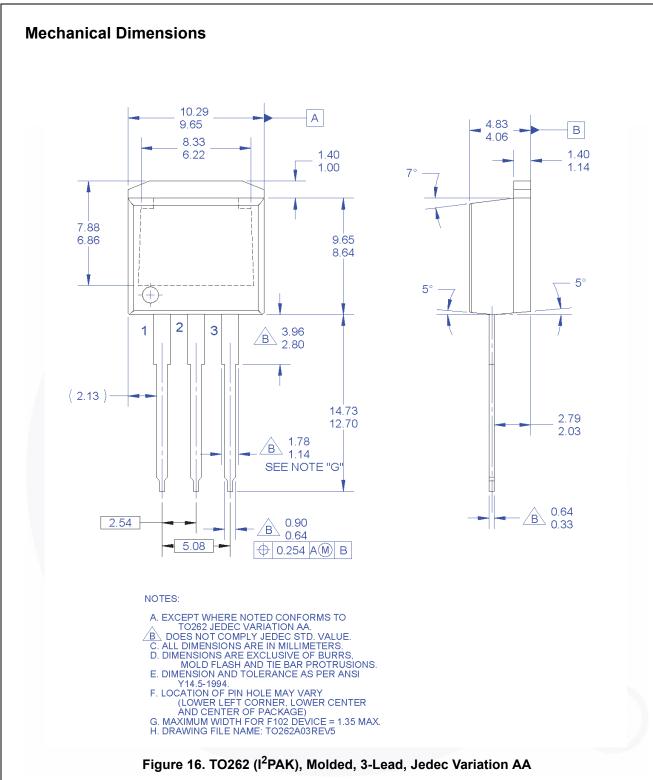
Device MarkingDeviceFQI5N60CFQI5N60CTU		PackageReel SizeI2-PAKTube		Таре	Width	Qua	intity	
				N/A		50 units		
lectri	cal Chara	acteristics T _c = 25°C	C unless otherwise	noted.				
Symbol		Parameter	Test Conditions		Min	Тур	Max	Unit
רף סנו ביי	racteristi							
BV _{DSS}		ce Breakdown Voltage	V _{GS} = 0 V, I _D = 250 μA		600			V
ABV _{DSS}		ů.			000			•
ΔT _J	ů i		I_D = 250 μ A, Referenced to 25°C			0.6		V/°C
	Zara Cata)	Altere Ducin Current	V_{DS} = 600 V, V_{GS} = 0 V V_{DS} = 480 V, T_{C} = 125°C				1	μA
DSS	Zero Gate	/oltage Drain Current				-	10	μA
GSSF	Gate-Body	Leakage Current, Forward	V_{GS} = 30 V, V_{DS}	= 0 V			100	nA
GSSR	Gate-Body	Leakage Current, Reverse	V_{GS} = -30 V, V_{DS}	₅ = 0 V			-100	nA
)n Cha	racteristic	25						
/ _{GS(th)}	1	hold Voltage	$V_{DS} = V_{GS}, I_D = 1$	250 μA	2.0		4.0	V
R _{DS(on)}	Static Drain-Source On-Resistance		V _{GS} = 10 V, I _D =	2.25 A		2.0	2.5	Ω
FS	Forward Tra	ansconductance	V _{DS} = 40 V, I _D =	2.25 A		4.7		S
Dynam _{Piss}	ic Charact		<u> </u>	- 0)/		515	670	pF
YOSS	Output Cap		V _{DS} = 25 V, V _{GS} = 0 V, f = 1.0 MHz			55	72	pF
rss		ansfer Capacitance				6.5	8.5	pF
		-						I.
	ng Charao					10		
d(on)	Turn-On De	,	V _{DD} = 300 V, I _D =	V_{DD} = 300 V, I _D = 4.5A, R _G = 25 Ω		10	30	ns
	Turn-On Ris		R _G = 25 Ω			42	90	ns
d(off)	Turn-Off De	,	(Note 4)			38	85	ns
	Turn-Off Fa			· · ·		46	100	ns
2 ^g	Total Gate (-	V _{DS} = 480 V, I _D =	= 4.5A,		15	19	nC
2 _{gs}	Gate-Sourc Gate-Drain	U	$V_{GS} = 10 V$ (Note 4)			2.5 6.6		nC nC
2 _{gd}	Gale-Dialit	Charge		(Note 4)		0.0		no
)rain-S	ource Dio	de Characteristics a	nd Maximum F	Ratings				
3		Continuous Drain-Source Dic		-			4.5	A
SM	Maximum Continuous Drain-Source Diode F						18	A
/ _{SD}		ce Diode Forward Voltage	$V_{GS} = 0 V, I_{S} = 4.5 A$ $V_{GS} = 0 V, I_{S} = 4.5 A,$ $dI_{F} / dt = 100 A/\mu s$				1.4	V
r		ecovery Time				300		ns
۶ _{rr}	Reverse Re	ecovery Charge				2.2		μC
TES:	I			Į				
	ating : Pulse widt	h limited by maximum junction temper	rature.					
10.0		$_{\rm O}$ = 50V, R _G = 25 Ω , starting T _J = 25°	C					











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FQI5N60C — N-Channel QFET[®] MOSFET



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