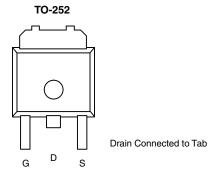


IRFR2605-VB Datasheet N-Channel 60 V (D-S) MOSFET

PRODUCT SUMMARY						
V _{DS} (V)	R _{DS(on)} (Ω) Max.	I _D (A)	Q _g (Typ.)			
60	0.073 at V _{GS} = 10 V	18	19.8			
60	0.085 at V _{GS} = 4.5 V	15	19.0			



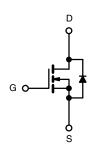
FEATURES

- Trench Power MOSFET
- 100 % R_g and UIS Tested
- Material categorization:
 For definitions of compliance please see

RoHS COMPLIANT HALOGEN

APPLICATIONS

- DC/DC Converters
- DC/AC Inverters
- Motor Drives



N-Channel MOSFET

ABSOLUTE MAXIMUM RATINGS ($T_C = 25 \text{ °C}$, unless otherwise noted)						
Parameter		Symbol	Limit	Unit		
Drain-Source Voltage	V _{DS}	60	V			
Gate-Source Voltage		V _{GS}	± 20			
Continuous Drain Current	T _C = 25 °C		18			
Continuous Drain Current	T _C = 70 °C	I _D	14	А		
Pulsed Drain Current (t = $300 \ \mu s$)	I _{DM}	25				
Avalanche Current		I _{AS}	15			
Single Avalanche Energy ^a	L = 0.1 mH	E _{AS}	11.25	mJ		
Maximum Power Dissipation ^a	T _C = 25 °C	Р	41.7 ^b	w		
	T _A = 25 °C ^c	P _D	2.1	v		
Operating Junction and Storage Temp	erature Range	T _J , T _{stg}	- 55 to 150	°C		

THERMAL RESISTANCE RATINGS						
Parameter	Symbol	Limit	Unit			
Junction-to-Ambient (PCB Mount) ^c	R _{thJA}	60	°C/W			
Junction-to-Case (Drain)	R _{thJC}	3	0/10			

Notes:

a. Duty cycle \leq 1 %.

b. See SOA curve for voltage derating.

c. When mounted on 1" square PCB (FR-4 material).

d. Base on T_C = 25 °C.

SPECIFICATIONS ($T_J = 25 \text{ °C}$, unless otherwise noted)						
Parameter	Symbol	Test Conditions	Min.	Тур.	Max.	Unit
Static						
Drain-Source Breakdown Voltage	V _{DS}	$V_{GS} = 0 \text{ V}, \text{ I}_{D} = 250 \mu\text{A}$ 60				V
Gate Threshold Voltage	V _{GS(th)}	$V_{DS} = V_{GS}$, $I_D = 250 \ \mu A$	1.0		3.0	v
Gate-Body Leakage	I _{GSS}	$V_{DS} = 0 V, V_{GS} = \pm 20 V$			± 250	nA
Zero Gate Voltage Drain Current		$V_{DS} = 60 \text{ V}, \text{ V}_{GS} = 0 \text{ V}$			1	
	I _{DSS}	I_{DSS} $V_{DS} = 60 \text{ V}, \text{ V}_{GS} = 0 \text{ V}, \text{ T}_{J} = 125 \text{ °C}$			50	μA
		$V_{DS} = 60 \text{ V}, \text{ V}_{GS} = 0 \text{ V}, \text{ T}_{J} = 150 ^{\circ}\text{C}$			250	
On-State Drain Current ^a	I _{D(on)}	$V_{DS} \ge 10$ V, $V_{GS} = 10$ V	20			Α
Drain Courses On State Desistence		V _{GS} = 10 V, I _D = 6.6 A		0.073		0
Drain-Source On-State Resistance ^a	R _{DS(on)}	V _{GS} = 4.5 V, I _D = 6 A		0.085		Ω
Forward Transconductance ^a	9 _{fs}	V _{DS} = 15 V, I _D = 6.6 A		25		S
Dynamic ^b		·				
Input Capacitance	C _{iss}			660		pF
Output Capacitance	C _{oss}	V _{DS} = 30 V, V _{GS} = 0 V, f = 1 MHz		85		
Reverse Transfer Capacitance	C _{rss}			40		
Total Gate Charge ^c	Qg			19.8	30	nC
Gate-Source Charge ^c	Q _{gs}	$V_{DS} = 30 \text{ V}, \text{ V}_{GS} = 10 \text{ V}, \text{ I}_{D} = 6.6 \text{ A}$		3.6		
Gate-Drain Charge ^c	Q _{gd}			4.1		
Gate Resistance	R _g	f = 1 MHz	0.4	2	4	Ω
Turn-On Delay Time ^c	t _{d(on)}			8	16	
Rise Time ^c	t _r	$V_{DD} = 30 \text{ V}, \text{ R}_{I} = 9.6 \Omega$		11	20	
Turn-Off Delay Time ^c	t _{d(off)}	$I_D \cong 5.2 \text{ Å}, V_{GEN} = 10 \text{ V}, \text{ R}_g = 1 \Omega$		18	27	
Fall Time ^c	t _f			5	10	
Turn-On Delay Time ^c	t _{d(on)}			38	57	ns
Rise Time ^c	t _r	$V_{DD} = 30 \text{ V}, \text{ R}_{I} = 9.6 \Omega$		58	87	-
Turn-Off Delay Time ^c	t _{d(off)}	$I_D \cong 5.2 \text{ A}, V_{\text{GEN}} = 4.5 \text{ V}, R_g = 1 \Omega$		18	27	
Fall Time ^c	t _f			8	16	
Drain-Source Body Diode Ratings a	nd Characteri	stics ^b T _C = 25 °C				
Continuous Current	ا _S				18	٨
Pulsed Current	I _{SM}				25	A
Forward Voltage ^a	V _{SD}	I _F = 5.2 A, V _{GS} = 0 V		0.8	1.5	V
Reverse Recovery Time	t _{rr}			34	51	ns
Peak Reverse Recovery Current	I _{RM(REC)}	I _F = 5.2 A, dI/dt = 100 A/μs		3	5	Α
Reverse Recovery Charge	Q _{rr}	1		50	75	nC

Notes:

a. Pulse test; pulse width \leq 300 µs, duty cycle \leq 2 %.

b. Guaranteed by design, not subject to production testing.

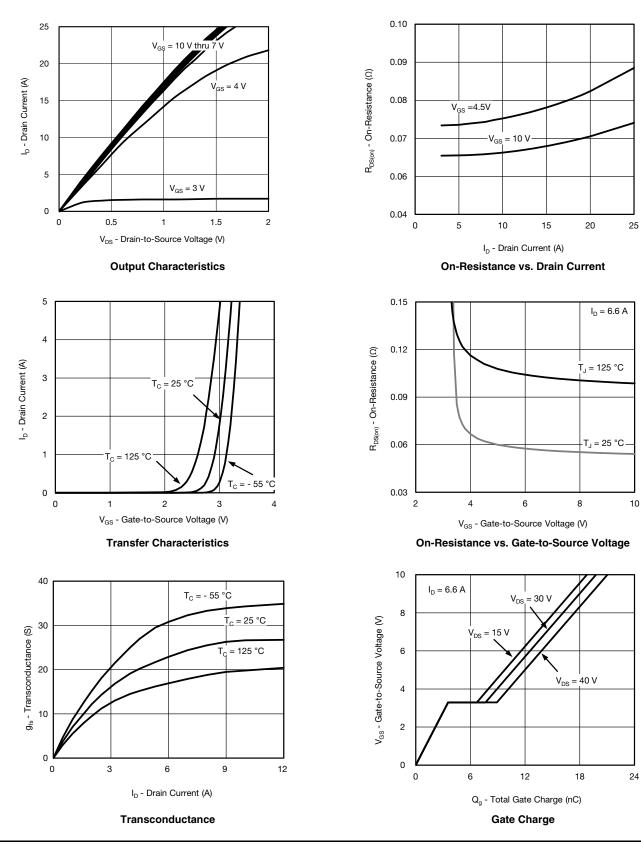
c. Independent of operating temperature.

Stresses beyond those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

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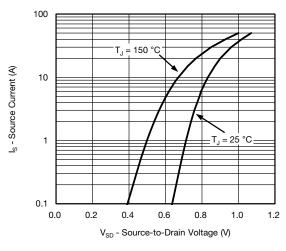




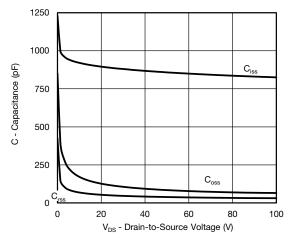




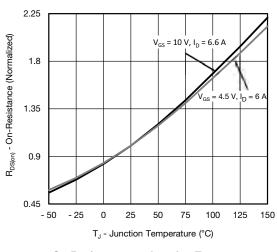




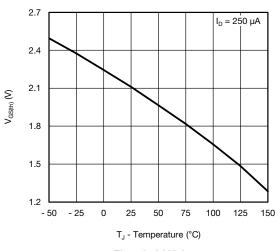
Source-Drain Diode Forward Voltage



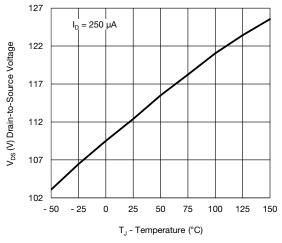




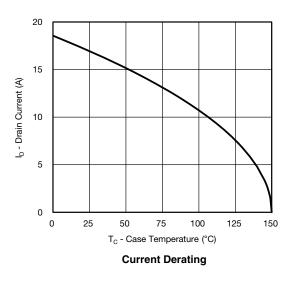
On-Resistance vs. Junction Temperature



Threshold Voltage

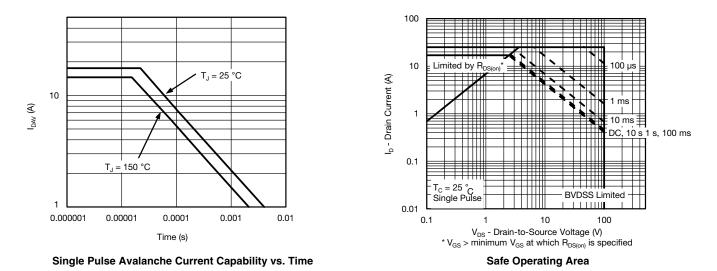


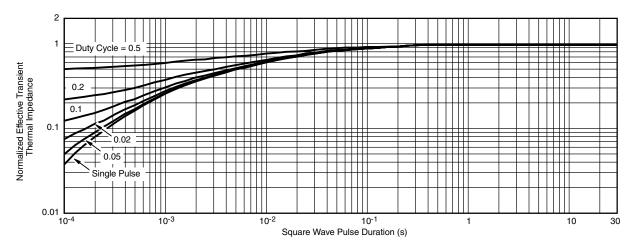
Drain Source Breakdown vs. Junction Temperature





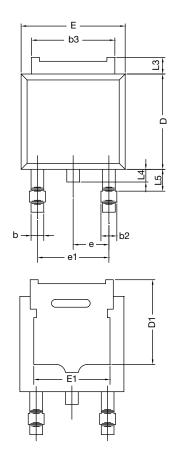
TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)



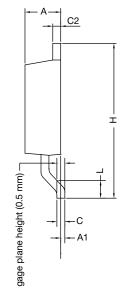


Normalized Thermal Transient Impedance, Junction-to-Case





TO-252AA Case Outline



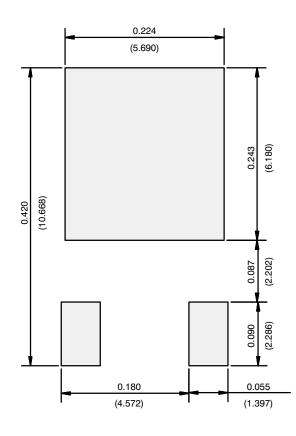
	MILLIN	IETERS	INC	INCHES	
DIM.	MIN.	MAX.	MIN.	MAX.	
Α	2.18	2.38	0.086	0.094	
A1	-	0.127	-	0.005	
b	0.64	0.88	0.025	0.035	
b2	0.76	1.14	0.030	0.045	
b3	4.95	5.46	0.195	0.215	
С	0.46	0.61	0.018	0.024	
C2	0.46	0.89	0.018	0.035	
D	5.97	6.22	0.235	0.245	
D1	4.10	-	0.161	-	
E	6.35	6.73	0.250	0.265	
E1	4.32	-	0.170	-	
Н	9.40	10.41	0.370	0.410	
е	2.28 BSC		0.090 BSC		
e1	4.56 BSC		0.180 BSC		
L	1.40	1.78	0.055	0.070	
L3	0.89	1.27	0.035	0.050	
L4	-	1.02	-	0.040	
L5	1.01	1.52	0.040	0.060	
ECN: T16-0236-Rev. P, 16-May-16 DWG: 5347					

Notes

• Dimension L3 is for reference only.



RECOMMENDED MINIMUM PADS FOR DPAK (TO-252)



Recommended Minimum Pads Dimensions in Inches/(mm)



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