FEATURES

Advanced New Design

Avanced Rugged Technology

• Rugged Gate Oxide Technology

Very Low Intrinsic Capacitances

• Excellent Switching Characteristics

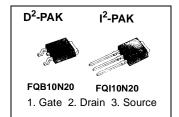
• Unrivalled Gate Charge: 14nC (Typ.)

• Extended Safe Operating Area

• Lower R_{DS(ON)}: 0.29Ω (Typ.)

 $BV_{DSS} = 200V$ $R_{DS(ON)} = 0.36\Omega$

 $I_{D} = 10A$



ABSOLUTE MAXIMUM RATINGS

Symbol	Characteristics	Value	Units
V_{DSS}	Drain-to-Source Voltage	200	V
1	Continuous Drain Current (T _C = 25°C)	10	A
I _D	Continuous Drain Current (T _C = 100°C)	6.3	
I _{DM}	Drain Current-Pulsed ①	40	V
V_{GS}	Gate-to-Source Voltage	±30	J
E _{AS}	Single Pulsed Avalanche Energy ②	180	mJ
I _{AR}	Avalanche Current ①	10	A
E _{AR}	Repetitive Avalanche Energy ①	8.7	mJ
dv/dt	Peak Diode Recovery dv/dt 3	5.5	V/ns
	Total Power Dissipatin (T _A = 25°C) *	3.1	W
P_{D}	Total Power Dissipation (T _C = 25°C) Linear Derating Factor	87 0.7	W/°C
T_J,T_STG	Operating Junction and Storage Temperature Range	-55 to +150	_ °C
T _L	Maximum Lead Temp. for Soldering Purposes, 1/8" from case for 5-seconds	300	

THERMAL RESISTANCE

Symbol	Characteristics	Тур.	Max.	Units
$R_{ heta JC}$	Junction-to-Case	-	1.44	
$R_{ heta JA}$	Junction-to-Ambient *	-	40	°C/W
$R_{ heta JA}$	Junction-to-Ambient	_	62.5	

^{*} When mounted on the minimum pad size recommended (PCB Mount)



ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise specified)

Symbol	Characteristics	Min.	Тур.	Max.	Units	Test Conditions
BV _{DSS}	Drain-Source Breakdown Votlage	200	_	_	V	V _{GS} =0V, I _D =250μA
Δ BV/ Δ T $_{ m J}$	Breskdown Voltage Temp. Coeff.	-	0.19	-	V/°C	I _D =250μA, See Fig 7
V _{GS(th)}	Gate Threshold Voltage	3.0	_	5.0	V	V _{DS} =5V, I _D =250μA
1	Gate-Source Leakage, Forward	-	_	100	nA	V _{GS} =30V
I _{GSS}	Gate-Source Leakage, Reverse	-	_	-100	11/	V _{GS} = -30V
l	Drain-to-Source Leakage Current	-	_	1	μΑ	V _{DS} =200V
I _{DSS}	Diam-to-Source Leakage Current	_	_	10		V _{DS} =160V, T _C =125°C
R _{DS(on)}	Static Drain-Source On-State Resistance	-	0.29	0.36	Ω	V _{GS} =10V, I _D =5.0A
9 _{fs}	Forward Transconductance	_	6.9	-	S	V _{DS} =40V, I _D =5.0A ④
C _{iss}	Input Capacitance	_	510	660	pF	V _{GS} =0V, V _{DS} =25V
C _{oss}	Output Capacitance	_	95	125		f=1MHz
C _{rss}	Reverse Transfer Capacitance	_	13	17		See Fig 5
t _{d(on)}	Turn-On Delay Time	_	9	30		
t _r	Rise Time	_	75	160	ns	$V_{DD} = 100V, I_{D} = 10A$ $R_{G} = 50\Omega$
t _{d(off)}	Turn-Off Delay Time	_	25	60	115	See Fig 13 (4) (5)
t _f	Fall Time	_	45	100		
Qg	Total Gate Charge	-	14	18	nC	V _{DS} =160V, V _{GS} =10V
Q _{gs}	Gate-Source Charge	-	3.7	-		I _D =10A
Q _{gd}	Gate-Drain (Miller) Charge	_	5.6	-		See Fig 6 & Fig 12 4 5

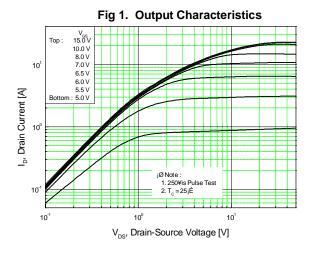
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS

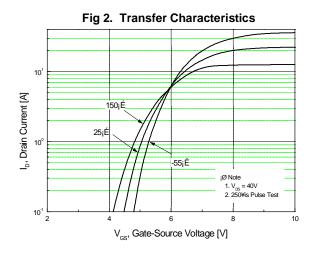
Symbol	Characteristics	Min.	Тур.	Max.	Units	Test Conditions	
I _S	Continuous Source Current	_	_	10	Α	Integral reverse pn-diode	
I _{SM}	Pulsed-Source Current ①	-	-	40	^	in the MOSFET	
V_{SD}	Diode Forward Voltage ④	-	-	1.5	V	T _J =25°C, I _S =10A, V _{GS} =0V	
Q _{rr}	Reverse Resovery Time	-	130	-	ns	T _J =25°C, I _F =10A, V _{DD} =160V	
	Reverse Resovery Charge	_	0.6	_	μС	di _F /dt=100A/μs ④	

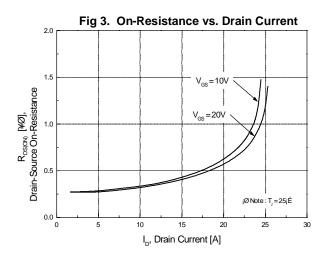
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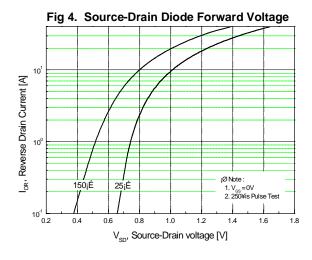
- Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
- $^{\circ}$ L=2.7mH, I_{AS}=10A, V_{DD}=50V, R_G=25Ω, Starting T_J =25°C
- ③ $I_{SD} \le 10A$, di/dt ≤ 300µs, $V_{DD} \le BV_{DSS}$, Starting $T_J = 25$ °C
- Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%
- S Essentially Independent of Operating Temperature

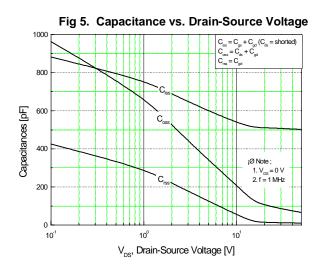


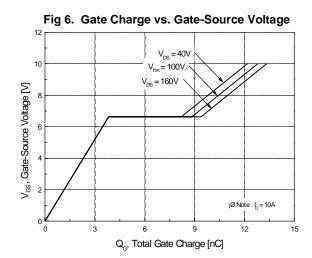




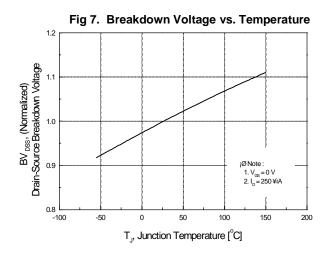


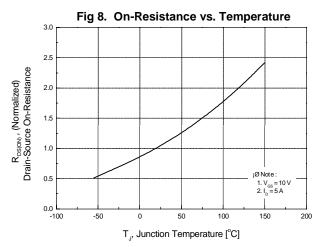


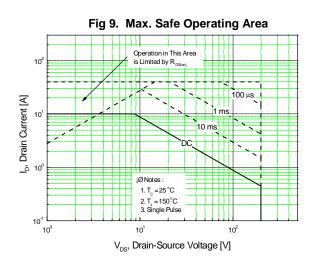


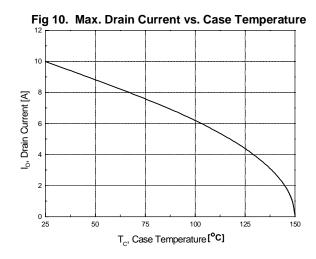


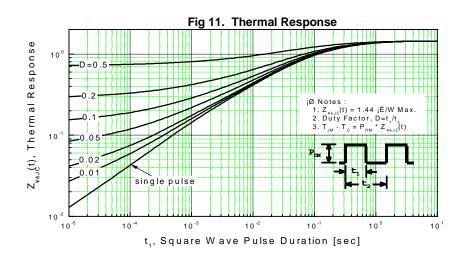














Same Type as DUT

Output

Same Type as DUT

Output

Ou

Fig 12. Gate Charge Test Circuit & Waveform

Fig 13. Resistive Switching Test Circuit & Waveforms

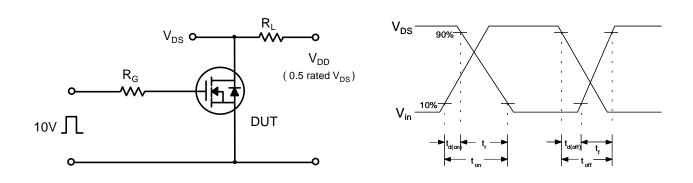
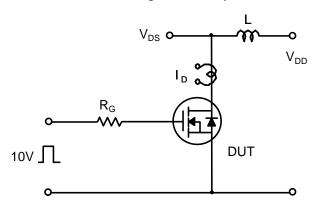
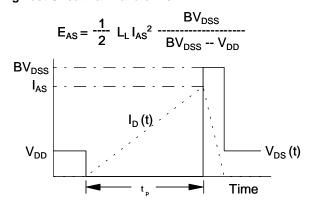


Fig 14. Unclamped Inductive Switching Test Circuit & Waveforms





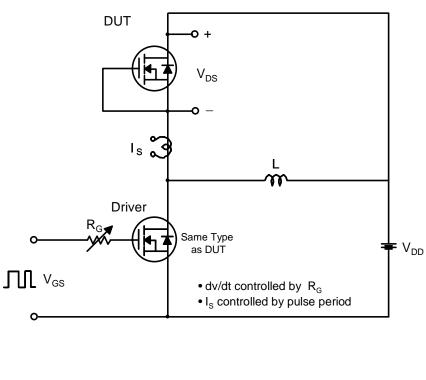
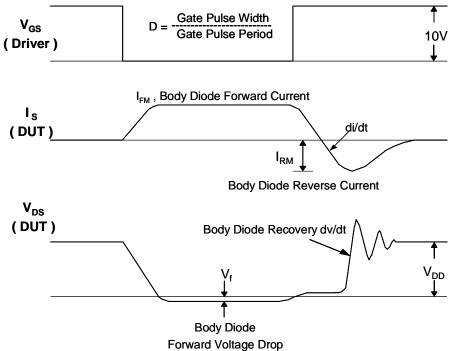


Fig 15. Peak Diode Recovery dv/dt Test Circuit & Waveforms





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