

ELECTRICAL CHARACTERISTICS ($T_{\text{case}} = 25^{\circ}\text{C}$ unless otherwise stated)

Parameter		Test Conditions		Min.	Typ.	Max.	Unit
STATIC ELECTRICAL RATINGS							
BV _{DSS}	Drain – Source Breakdown Voltage	V _{GS} = 0	I _D = 1mA	100			V
ΔBV _{DSS}	Temperature Coefficient of Breakdown Voltage	Reference to 25°C I _D = 1mA			0.13		V/°C
R _{DS(on)}	Static Drain – Source On–State Resistance ¹	V _{GS} = 10V	I _D = 24A			0.055	Ω
		V _{GS} = 10V	I _D = 38A			0.065	
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS}	I _D = 250mA	2		4	V
g _{fs}	Forward Transconductance ¹	V _{DS} ≥ 15V	I _{DS} = 24A	9			S (V)
I _{DSS}	Zero Gate Voltage Drain Current	V _{GS} = 0	V _{DS} = 0.8BV _{DSS}			25	μA
			T _J = 125°C			250	
I _{GSS}	Forward Gate – Source Leakage	V _{GS} = 20V				100	nA
I _{GSS}	Reverse Gate – Source Leakage	V _{GS} = –20V				–100	
DYNAMIC CHARACTERISTICS							
C _{iss}	Input Capacitance	V _{GS} = 0			3700		pF
C _{oss}	Output Capacitance	V _{DS} = 25V			1100		
C _{rss}	Reverse Transfer Capacitance	f = 1MHz			200		
Q _g	Total Gate Charge	V _{GS} = 10V		50		125	nC
Q _{gs}	Gate – Source Charge	I _D = 38A		8		22	
Q _{gd}	Gate – Drain (“Miller”) Charge	V _{DS} = 0.5BV _{DSS}		25		65	
t _{d(on)}	Turn–On Delay Time	V _{DD} = 50V				35	ns
t _r	Rise Time	I _D = 38A				190	
t _{d(off)}	Turn–Off Delay Time	R _G = 2.35Ω				170	
t _f	Fall Time					130	
SOURCE – DRAIN DIODE CHARACTERISTICS							
I _S	Continuous Source Current					38	A
I _{SM}	Pulse Source Current ²					152	
V _{SD}	Diode Forward Voltage ¹	I _S = 38A	T _J = 25°C			1.8	V
		V _{GS} = 0					
t _{rr}	Reverse Recovery Time	I _F = 38A	T _J = 25°C			500	ns
Q _{rr}	Reverse Recovery Charge ¹	d _i / d _t ≤ 100A/μs V _{DD} ≤ 50V				2.9	μC
t _{on}	Forward Turn–On Time			Negligible			
PACKAGE CHARACTERISTICS							
L _D	Internal Drain Inductance (measured from 6mm down drain lead to centre of die)				5.0		nH
L _S	Internal Source Inductance (from 6mm down source lead to source bond pad)				13		
THERMAL CHARACTERISTICS							
R _{θJC}	Thermal Resistance Junction – Case					0.83	°C/W
R _{θCS}	Thermal Resistance Case – Sink				0.12		
R _{θJA}	Thermal Resistance Junction – Ambient					30	

Notes

1) Pulse Test: Pulse Width $\leq 300\text{ms}$, $\delta \leq 2\%$

2) Repetitive Rating – Pulse width limited by maximum junction temperature.