

Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit		
Drain-Source Voltage			V _{DSS}	-20	V
Gate-Source Voltage			V _{GSS}	±10	V
Continuous Drain Current (Note 5) V_{GS} = -4.5V	Steady State	$T_A = +25^{\circ}C$ $T_A = +70^{\circ}C$ $T_C = +25^{\circ}C$	I _D	-17.5 -14.0 -40	А
Pulsed Drain Current (10µs Pulse, Duty Cycle = 1%	I _{DM}	-80	А		
Maximum Continuous Body Diode Forward Current	Is	-2.2	А		
Avalanche Current (Note 7) L = 0.1mH	I _{AS}	-23	A		
Avalanche Energy (Note 7) L = 0.1mH			E _{AS}	28	mJ

Thermal Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic		Symbol	Value	Unit
Total Dower Discipation (Note 5)	T _A = +25°C	Р	2.3	w
Total Power Dissipation (Note 5)	T _C = +25°C	P _D	41	
Thermal Resistance, Junction to Ambient	(Note 5)	Р	54	°C/W
	(Note 6)	$R_{\theta JA}$	136	
Thermal Resistance, Junction to Case (Note 5)	R _{0JC}	3.0		
Operating and Storage Temperature Range		T _{J,} T _{STG}	-55 to +150	°C

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 8)						
Drain-Source Breakdown Voltage	BV _{DSS}	-20	_	_	V	$V_{GS} = 0V, I_D = -250\mu A$
Zero Gate Voltage Drain Current	I _{DSS}	_	—	-1	μA	$V_{DS} = -16V, V_{GS} = 0V$
Gate-Source Leakage	Igss	_	—	±100	nA	$V_{GS} = \pm 8V, V_{DS} = 0V$
ON CHARACTERISTICS (Note 8)						
Gate Threshold Voltage	V _{GS(TH)}	-0.4	_	-1.0	V	$V_{DS} = V_{GS}, I_D = -250 \mu A$
		_	4.2	5.5	mΩ	$V_{GS} = -4.5V, I_D = -15A$
Static Drain-Source On-Resistance	D	_	5.4	7.5		$V_{GS} = -2.5V, I_D = -10A$
Static Drain-Source On-Resistance	R _{DS(ON)}	—	8	12		$V_{GS} = -1.8V, I_D = -1A$
		—	12	17		V _{GS} = -1.5V, I _D = -1A
Diode Forward Voltage	V _{SD}	_	-0.7	-1.2	V	$V_{GS} = 0V, I_{S} = -10A$
DYNAMIC CHARACTERISTICS (Note 9)						
Input Capacitance	C _{iss}	_	5404	7500		V _{DS} = -10V, V _{GS} = 0V f = 1.0MHz
Output Capacitance	Coss	_	728	1000	pF	
Reverse Transfer Capacitance	Crss	—	612	900		
Gate Resistance	R _G	—	3.8	8	Ω	$V_{DS} = 0V, V_{GS} = 0V, f = 1.0MHz$
Total Gate Charge (V _{GS} = -4.5V)	Qg	—	64	100		
Total Gate Charge (V _{GS} = -10V)	Qg	—	140	200	nC	V _{DD} = -10V, I _D = -20A
Gate-Source Charge	Q _{gs}	—	8.5	15	nc	
Gate-Drain Charge	Q _{gd}	—	17	30		
Turn-On Delay Time	t _{D(ON)}	_	9.1	20		
Turn-On Rise Time	t _R	_	19	35	ns	$V_{GS} = -4.5V, V_{DD} = -10V,$ $R_G = 1\Omega, R_G = 1\Omega, I_D = -10A$
Turn-Off Delay Time	t _{D(OFF)}	_	146	220	115	
Turn-Off Fall Time	tF	_	104	150		
Reverse Recovery Time (Note 9)	t _{RR}	_	61	100	ns	I _F = -10A, di/dt = 100A/μs
Reverse Recovery Charge (Note 9)	Q _{RR}	_	44	70	nC	I _F = -10A, di/dt = 100A/µs

 R_{0JA} is determined with the device mounted on FR-4 substrate PC board, 2oz copper, with 1inch square copper plate. R_{0JC} is guaranteed by design while R_{0JA} is determined by the user's board design.

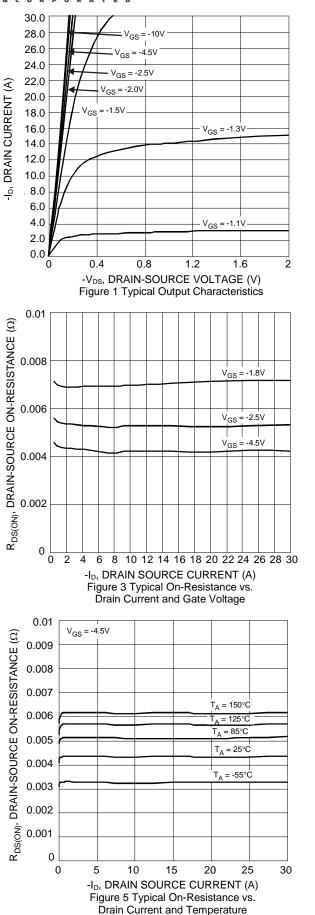
6. Device mounted on FR-4 substrate PC board, 2oz copper, with minimum recommended pad layout.

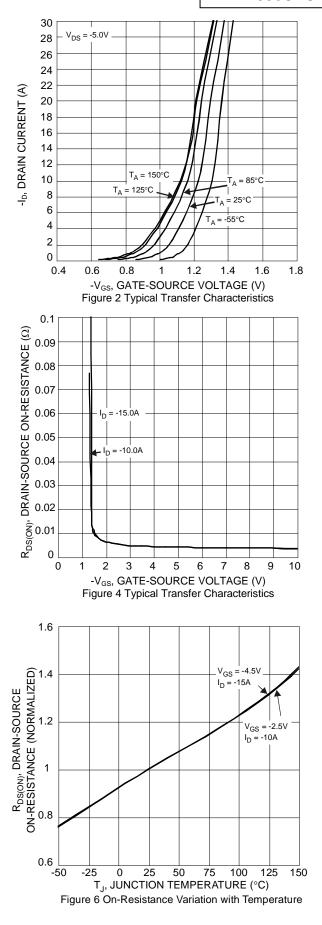
7. UIS in production with L = 0.1mH, T_J = +25°C.

8. Short duration pulse test used to minimize self-heating effect.

9. Guaranteed by design. Not subject to product testing.





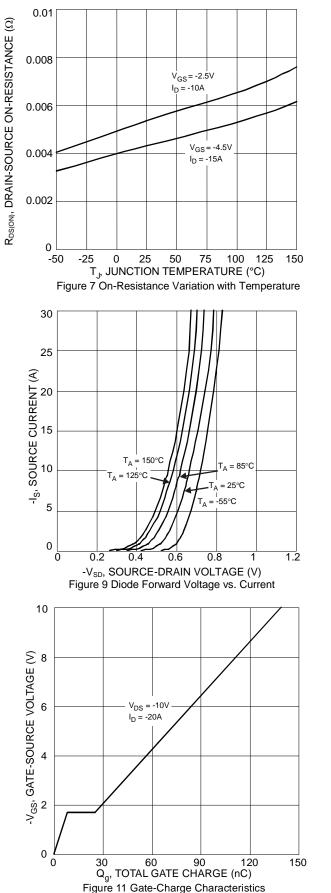


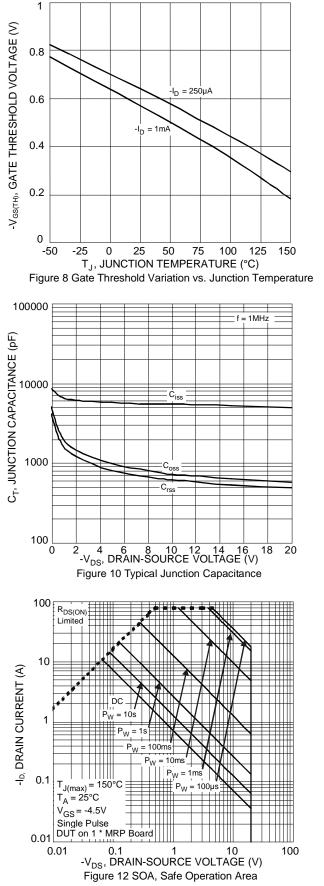
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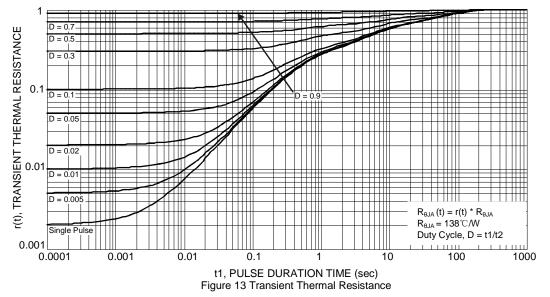




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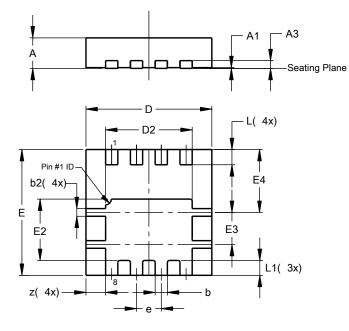




Package Outline Dimensions

Please see http://www.diodes.com/package-outlines.html for the latest version.

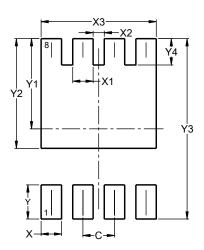
PowerDI3333-8



PowerDI3333-8						
Dim	Min	Max	Тур			
Α	0.75	0.85	0.80			
A1	0.00	0.05	0.02			
A3		-	0.203			
b	0.27	0.37	0.32			
b2	0.15	0.25	0.20			
D	3.25	3.35	3.30			
D2	2.22	2.32	2.27			
Е	3.25	3.35	3.30			
E2	1.56	1.66	1.61			
E3	0.79	0.89	0.84			
E4	1.60	1.70	1.65			
е	-	-	0.65			
L	0.35	0.45	0.40			
L1	_	_	0.39			
z	_	-	0.515			
All Dimensions in mm						

Suggested Pad Layout

Please see http://www.diodes.com/package-outlines.html for the latest version.



Dimensions	Value (in mm)
С	0.650
Х	0.420
X1	0.420
X2	0.230
X3	2.370
Y	0.700
Y1	1.850
Y2	2.250
Y3	3.700
Y4	0.540

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