



DUAL P-CHANNEL ENHANCEMENT MODE MOSFET

Features

- Dual P-Channel MOSFET
- Low On-Resistance
- Low Input Capacitance
- Fast Switching Speed
- Low Input/Output Leakage
- Lead Free By Design/RoHS Compliant (Note 1)
- ESD Protected up to 3kV
- "Green" Device (Note 2)
- Qualified to AEC-Q101 Standards for High Reliability

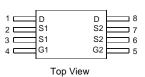
Mechanical Data

- Case: TSSOP-8L
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections: See Diagram Below
- Marking Information: See Page 5
- Ordering Information: See Page 5Weight: 0.039 grams (approximate)

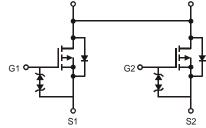








Pin Configuration



Internal Schematic

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}	±8	V
Continuous Drain Current (Note 3)	Steady State	$T_A = 25$ °C $T_A = 85$ °C	I _D	6.04 3.96	А
Pulsed Drain Current (Note 4)			I _{DM}	22	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 3)	P_{D}	0.89	W
Thermal Resistance, Junction to Ambient @T _A = 25°C	R _{0JA}	142.7	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

Notes:

- 1. No purposefully added lead.
- 2. Diodes Inc.'s "Green" policy can be found on our website at http://www.diodes.com/products/lead_free/index.php.
- 3. Device mounted on FR-4 substrate PC board with minimum recommended pad layout.
- 4. Repetitive rating, pulse width limited by junction temperature.

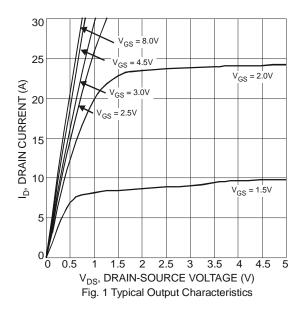


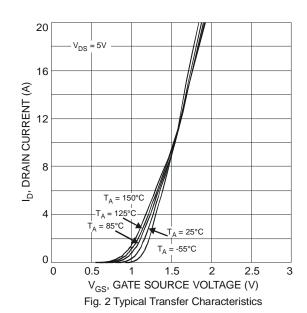
Electrical Characteristics @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition	
OFF CHARACTERISTICS (Note 5)							
Drain-Source Breakdown Voltage	BV _{DSS}	-20	-	-	V	$V_{GS} = 0V, I_D = -250\mu A$	
Zero Gate Voltage Drain Current	I _{DSS}	-	-	-1.0	μA	$V_{DS} = -20V, V_{GS} = 0V$	
Gate-Source Leakage	I _{GSS}	-	-	±10	μА	$V_{GS} = \pm 8V$, $V_{DS} = 0V$	
ON CHARACTERISTICS (Note 5)							
Gate Threshold Voltage	V _{GS(th)}	-0.4	-0.7	-1.0	V	$V_{DS} = V_{GS}, I_{D} = -250 \mu A$	
Static Drain-Source On-Resistance	R _{DS (ON)}	·	23 30 41	35 45 62	mΩ	$V_{GS} = -4.5V$, $I_D = -4.0A$ $V_{GS} = -2.5V$, $I_D = -4.0A$ $V_{GS} = -1.8V$, $I_D = -2.0A$	
Forward Transfer Admittance	Y _{fs}	1	14	-	S	$V_{DS} = -5V, I_{D} = -4A$	
Diodes Forward Voltage	V_{SD}	ı	-0.7	-1.0	V	Is = -1A, V _{GS} = 0V	
DYNAMIC CHARACTERISTICS (Note 6)							
Input Capacitance	C _{iss}	-	1610	-	pF	$V_{DS} = -10V, V_{GS} = 0V,$ f = 1.0MHz	
Output Capacitance	Coss	•	157	-	pF		
Reverse Transfer Capacitance	C _{rss}	ı	145	-	pF	- I = 1.0WHZ	
Gate Resistance	R_g	•	9.45	-	Ω	$V_{DS} = 0V$, $V_{GS} = 0V$, $f = 1MHz$	
SWITCHING CHARACTERISTICS							
Total Gate Charge	Qg	ı	15.4	-	nC	$V_{GS} = -4.5V, V_{DS} = -10V,$ $I_{D} = -4A$	
Gate-Source Charge	Q_{gs}	•	2.5	-	nC		
Gate-Drain Charge	Q_{gd}	-	3.3	-	nC		
Turn-On Delay Time	t _{D(on)}	-	16.8	-	ns		
Turn-On Rise Time	t _r	-	12.4	-	ns	$V_{DS} = -10V, V_{GS} = -4.5V,$ $R_{L} = 10\Omega, R_{G} = 6.0\Omega, I_{D} = -1A$	
Turn-Off Delay Time	t _{D(off)}	1	94.1	-	ns		
Turn-Off Fall Time	t _f	-	42.4	-	ns]	

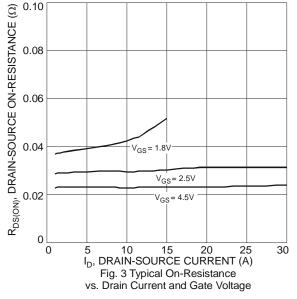
Notes: 5. Short duration pulse test used to minimize self-heating effects.

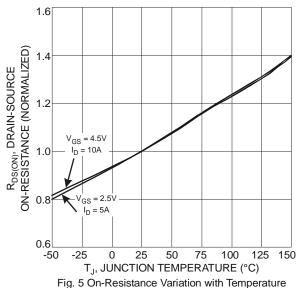
6. Guaranteed by design. Not subject to production testing.











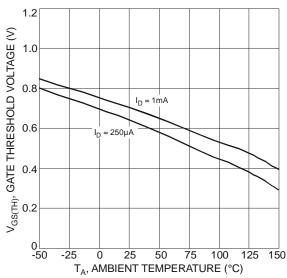


Fig. 7 Gate Threshold Variation vs. Ambient Temperature

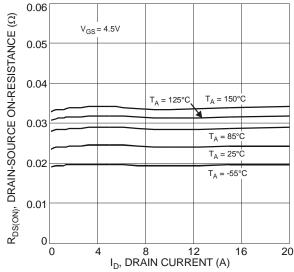


Fig. 4 Typical Drain-Source On-Resistance vs. Drain Current and Temperature

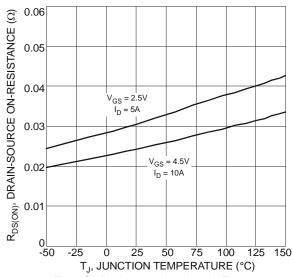


Fig. 6 On-Resistance Variation with Temperature

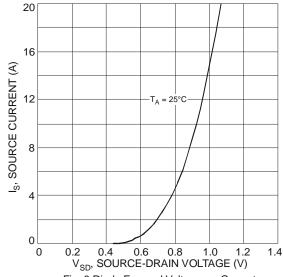


Fig. 8 Diode Forward Voltage vs. Current



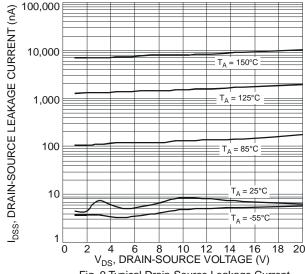


Fig. 9 Typical Drain-Source Leakage Current vs. Drain-Source Voltage

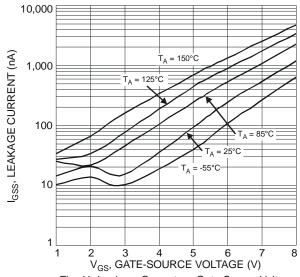
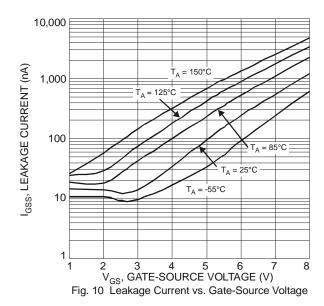
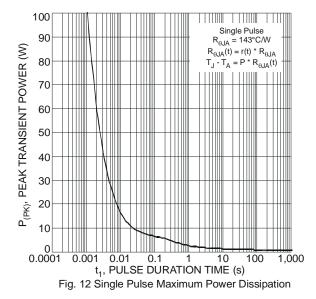


Fig. 11 Leakage Current vs. Gate-Source Voltage





D = 0.7 r(t), TRANSIENT THERMAL RESISTANCE D = 0.5 D = 0.3D = 0.1 $\mathsf{R}_{\theta\mathsf{JA}}(\mathsf{t}) = \mathsf{r}(\mathsf{t}) \,^{\star} \, \mathsf{R}_{\theta\mathsf{JA}}$ $R_{\theta JA} = 143^{\circ}C/W$ D = 0.020.01 D = 0.01 D = 0.005 $T_J - T_A = P * R_{\theta JA}(t)$ Duty Cycle, $D = t_1/t_2$ D 0.001 0.00001 0.0001 0.001 0.1 100 10 1,000 t₁, PULSE DURATION TIME (s)

Fig. 13 Transient Thermal Response

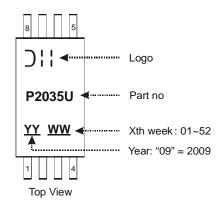


Ordering Information (Note 7)

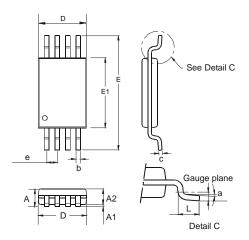
Part Number	Case	Packaging	
DMP2035UTS-13	TSSOP-8L	2500 / Tape & Reel	

Notes: 7. For packaging details, go to our website at http://www.diodes.com/datasheets/ap02007.pdf.

Marking Information

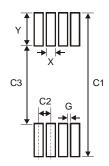


Package Outline Dimensions



TSSOP-8L					
Dim	Min	Max	Тур		
а	0.09	I	_		
Α	-	1.20	_		
A1	0.05	0.15	_		
A2	0.825	1.025	0.925		
b	0.19	0.30	_		
С	0.09	0.20	_		
D	2.90	3.10	3.025		
е	-	I	0.65		
Е	-	-	6.40		
E1	4.30	4.50	4.425		
L	0.45	0.75	0.60		
All Dimensions in mm					

Suggested Pad Layout



Dimensions	Value (in mm)
Х	0.45
Υ	1.78
C1	7.72
C2	0.65
C3	4.16
G	0.20



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