





P-CHANNEL ENHANCEMENT MODE FIELD EFFECT TRANSISTOR

Features

- Low On-Resistance
- Very Low Gate Threshold Voltage V_{GS(TH)} <1V
- Low Input Capacitance
- Fast Switching Speed
- Low Input/Output Leakage
- Lead Free By Design/RoHS Compliant (Note 2)
- ESD Protected Gate
- "Green" Device (Note 3)
- Qualified to AEC-Q101 standards for High Reliability

Mechanical Data

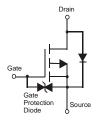
- Case: SOT-23
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish Matte Tin annealed over Copper leadframe.
 Solderable per MIL-STD-202, Method 208
- Terminal Connections: See Diagram
- Marking Information: See Page 3
- Ordering Information: See Page 3
- Weight: 0.008 grams (approximate)

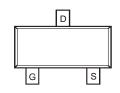
SOT-23





TOP VIEW





Equivalent Circuit

TOP VIEW

Maximum Ratings @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Units
Drain-Source Voltage	V _{DSS}	-20	V
Gate-Source Voltage	V _{GSS}	±8	V
Drain Current (Note 1) V _{GS} = -4.5V	I _D	-600	mA
Pulsed Drain Current	I _{DM}	-1.9	Α

Thermal Characteristics @TA = 25°C unless otherwise specified

Characteristic	Symbol	Value	Units
Total Power Dissipation (Note 1)	P_{D}	550	mW
Thermal Resistance, Junction to Ambient	$R_{ heta JA}$	227	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

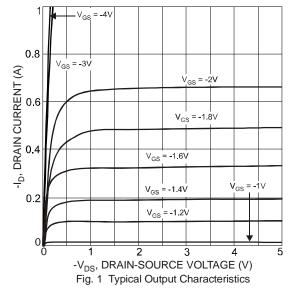
Electrical Characteristics @TA = 25°C unless otherwise specified

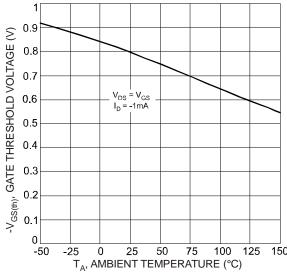
Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 4)						•
Drain-Source Breakdown Voltage	BV _{DSS}	-20	_	_	V	$V_{GS} = 0V, I_D = -250mA$
Zero Gate Voltage Drain Current	I _{DSS}	_	_	-1.0	μΑ	V _{DS} = -20V, V _{GS} = 0V
Gate-Source Leakage	I _{GSS}	_	_	±1.0	μΑ	$V_{GS} = \pm 4.5V, V_{DS} = 0V$
ON CHARACTERISTICS (Note 4)						•
Gate Threshold Voltage	V _{GS(th)}	-0.5	_	-1.0	V	$V_{DS} = V_{GS}, I_{D} = -250 \mu A$
			0.7	0.9		$V_{GS} = -4.5V$, $I_D = -430mA$
Static Drain-Source On-Resistance	R _{DS (ON)}	_	1.1	1.4	Ω	$V_{GS} = -2.5V$, $I_D = -300mA$
	, ,		1.7	2.0		$V_{GS} = -1.8V, I_D = -150mA$
Forward Transfer Admittance	Y _{fs}	200	_	_	mS	$V_{DS} = -10V, I_{D} = -0.2A$
Diode Forward Voltage (Note 4)	V _{SD}	-0.5	_	-1.2	V	$V_{GS} = 0V, I_{S} = -115mA$
DYNAMIC CHARACTERISTICS						•
Input Capacitance	C _{iss}	_	_	175	pF	101/11/01/
Output Capacitance	Coss	_	_	30	pF	$V_{DS} = -16V, V_{GS} = 0V$ f = 1.0MHz
Reverse Transfer Capacitance	C _{rss}	_	_	20	pF	= 1.0 V Z

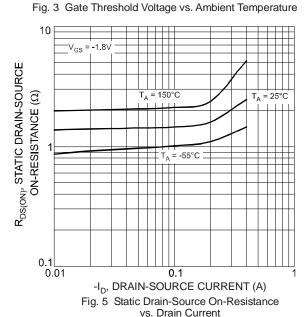
Notes: 1. Device mounted on FR-4 PCB.

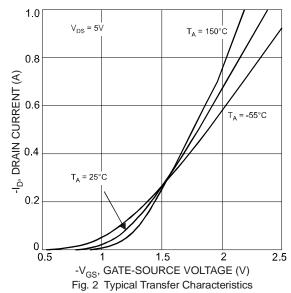
- 2. No purposefully added lead.
- 3. Diodes Inc.'s "Green" policy can be found on our website at http://www.diodes.com/products/lead_free/index.php.
- 4. Short duration pulse test used to minimize self-heating effect.











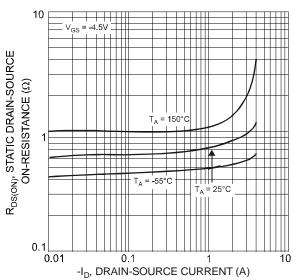


Fig. 4 Static Drain-Source On-Resistance vs. Drain Current

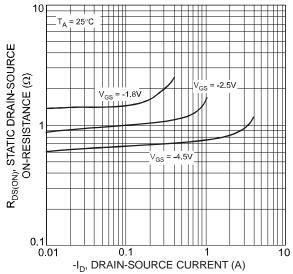


Fig. 6 Static Drain-Source On-Resistance vs.
Drain-Source Current



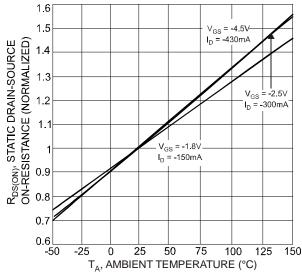


Fig. 7 Static Drain-Source On-State Resistance vs. Ambient Temperature

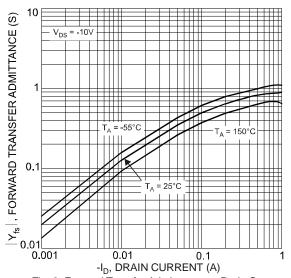


Fig. 9 Forward Transfer Admittance vs. Drain Current

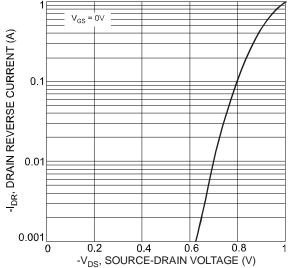
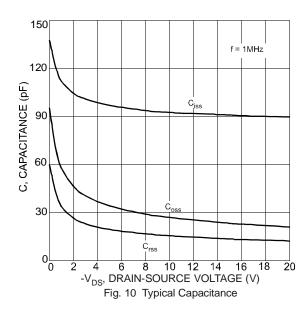


Fig. 8 Reverse Drain Current vs. Source-Drain Voltage

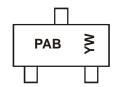


Ordering Information (Note 5)

Part Number	Case	Packaging		
DMP2004K-7	SOT-23	3000/Tape & Reel		

Notes: 5. For packaging details, go to our website at http://www.diodes.com/datasheets/ap02007.pdf.

Marking Information



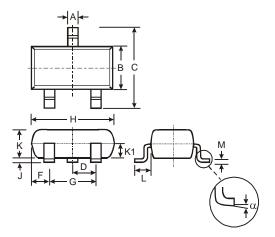
PAB = Product Type Marking Code YM = Date Code Marking Y = Year (ex: U = 2007) M = Month (ex: 9 = September)

Date Code Key

Year	20	07	20	08	20	09	20	10	20	11	20	12
Code	Ų	J	\	/	V	V)	<	`	1	Z	7
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	0	N	D

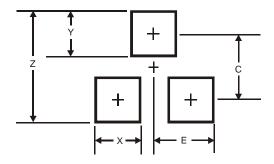


Package Outline Dimensions



SOT-23					
Dim	Min	Max	Тур		
Α	0.37	0.51	0.40		
В	1.20	1.40	1.30		
С	2.30	2.50	2.40		
D	0.89	1.03	0.915		
F	0.45	0.60	0.535		
G	1.78	2.05	1.83		
Η	2.80	3.00	2.90		
J	0.013	0.10	0.05		
K	0.903	1.10	1.00		
K1	-	-	0.400		
L	0.45	0.61	0.55		
М	0.085	0.18	0.11		
α	0°	8°	-		
All	All Dimensions in mm				

Suggested Pad Layout



Dimensions	Value (in mm)
Z	2.9
X	0.8
Υ	0.9
С	2.0
E	1.35



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