



**GP**  
**ELECTRONICS**

**GP72KD11**

**60V N-Channel MOSFET**

### Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	$I_D$
60V	1.2Ω@10V	0.41A
	1.3Ω@4.5V	

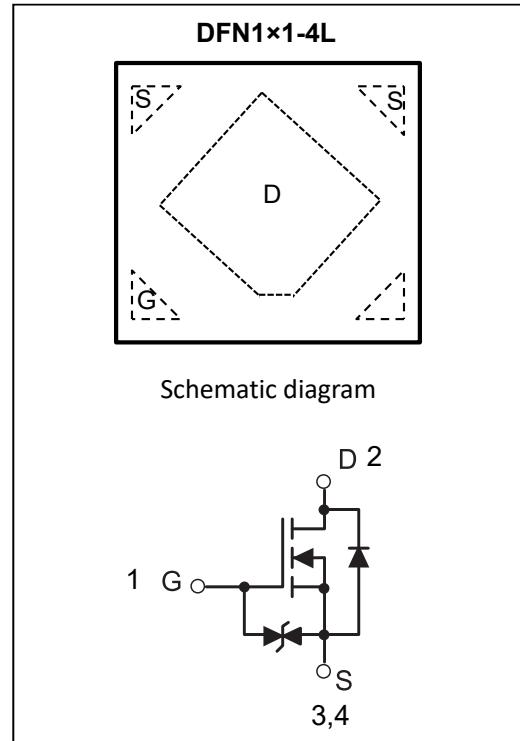
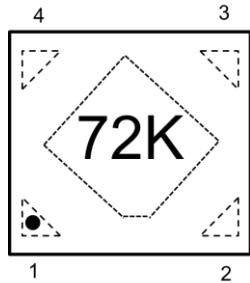
### Feature

- Low On-Resistance
- Low Threshold Voltage
- Fast Switching Speed
- ESD Protected Gate

### Application

- Load Switch
- Portable Applications
- Power Management Functions

### MARKING:



### ABSOLUTE MAXIMUM RATINGS ( $T_a=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	60	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Continuous Drain Current	$I_D$	0.41	A
		0.30	
Pulsed Drain Current	$I_{DM}$	1.2	A
Power Dissipation	$P_D$	0.2	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	625	°C/W
Storage Temperature	$T_{STG}$	-55~+150	°C

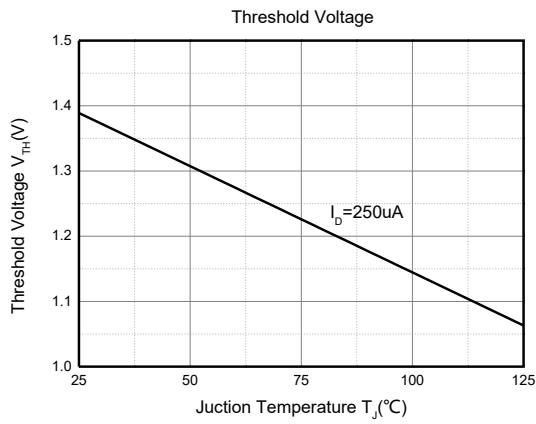
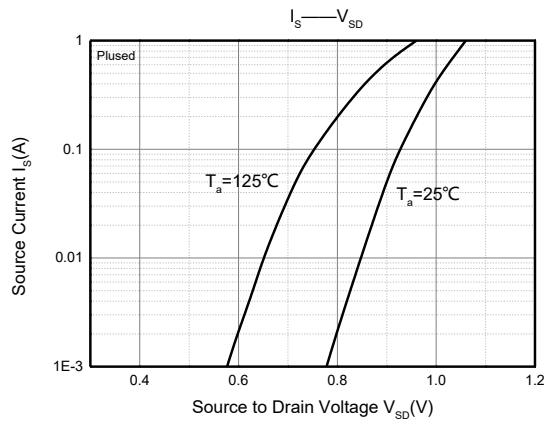
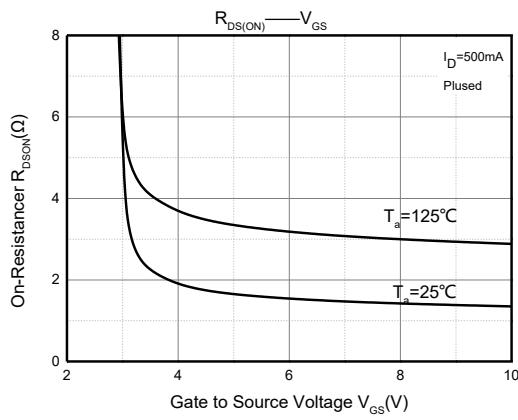
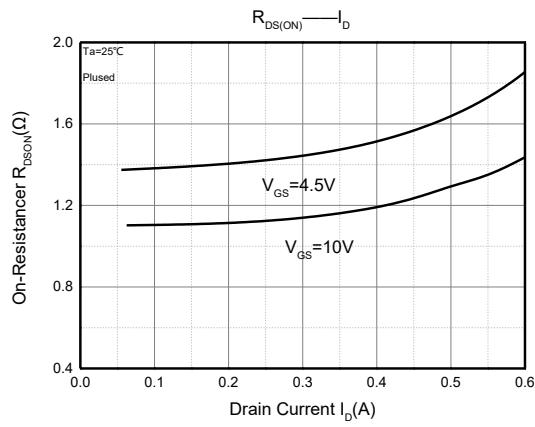
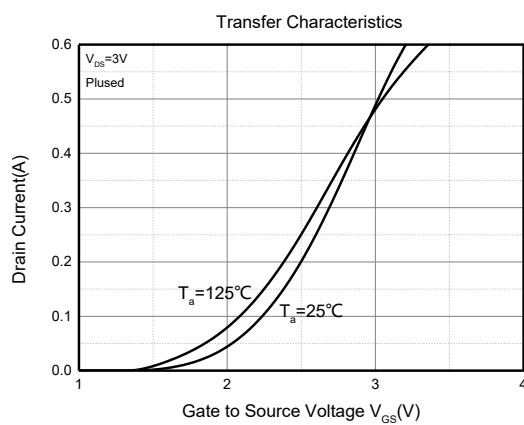
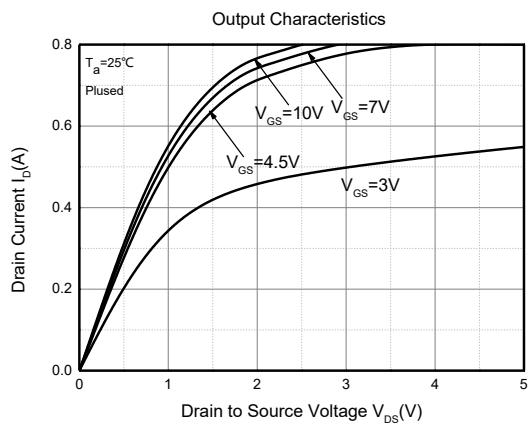
**MOSFET ELECTRICAL CHARACTERISTICS( $T_a=25^\circ\text{C}$  unless otherwise noted)**

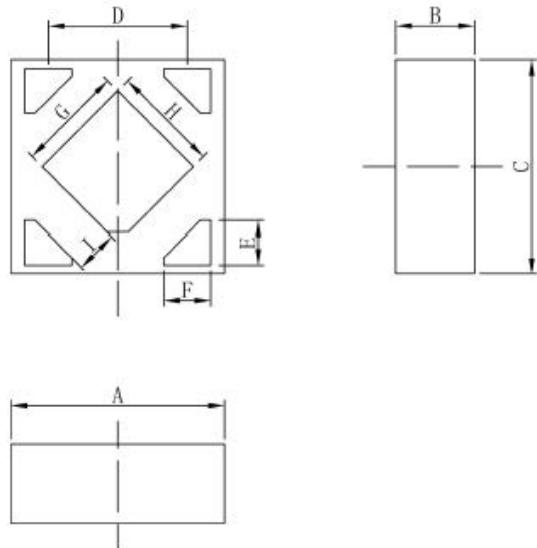
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
<b>Static Characteristics</b>						
Drain-source breakdown voltage	$V_{(\text{BR})\text{DSS}}$	$V_{\text{GS}} = 0\text{V}, I_{\text{D}} = 250\mu\text{A}$	60			V
Zero gate voltage drain current	$I_{\text{DSS}}$	$V_{\text{DS}} = 60\text{V}, V_{\text{GS}} = 0\text{V}$			100	nA
Gate-body leakage current	$I_{\text{GSS}}$	$V_{\text{GS}} = \pm 20\text{V}, V_{\text{DS}} = 0\text{V}$			$\pm 10$	$\mu\text{A}$
		$V_{\text{GS}} = \pm 5\text{V}, V_{\text{DS}} = 0\text{V}$			$\pm 1$	
Gate threshold voltage	$V_{\text{GS}(\text{th})}$	$V_{\text{DS}} = V_{\text{GS}}, I_{\text{D}} = 250\mu\text{A}$	1.0	1.4	2.5	V
Drain-source on-resistance <sup>a</sup>	$R_{\text{DS}(\text{on})}$	$V_{\text{GS}} = 10\text{V}, I_{\text{D}} = 40\text{mA}$		1.2	1.5	$\Omega$
		$V_{\text{GS}} = 4.5\text{V}, I_{\text{D}} = 35\text{mA}$		1.3	1.8	
Forward transconductance <sup>a</sup>	$g_{\text{fs}}$	$V_{\text{DS}} = 5\text{V}, I_{\text{D}} = 40\text{mA}$	100			mS
Diode forward voltage	$V_{\text{SD}}$	$V_{\text{DS}} = 0\text{V}, I_{\text{S}} = 300\text{mA}$		0.84	1.1	V
<b>Dynamic characteristics</b>						
Input Capacitance <sup>b</sup>	$C_{\text{iss}}$	$V_{\text{DS}} = 40\text{V}, V_{\text{GS}} = 0\text{V}, f = 1\text{MHz}$		41	80	pF
Output Capacitance <sup>b</sup>	$C_{\text{oss}}$			3.6	7	
Reverse Transfer Capacitance <sup>b</sup>	$C_{\text{rss}}$			2.9	5.6	
Gate resistance	$R_g$	$V_{\text{DS}} = 0\text{V}, V_{\text{GS}} = 0\text{V}, f = 1\text{MHz}$		81	200	$\Omega$
Total Gate Charge	$Q_g$	$V_{\text{GS}} = 4.5\text{V}$	$V_{\text{DS}} = 50\text{V}, I_{\text{D}} = 1\text{A}$	0.72	1.5	nC
		$V_{\text{GS}} = 10\text{V}$		1.41	2.8	
Gate-Source Charge	$Q_{\text{gs}}$			0.24	0.4	
Gate-Drain Charge	$Q_{\text{gd}}$			0.24	0.5	
Turn-on delay time <sup>b</sup>	$t_{\text{d}(\text{on})}$	$V_{\text{DS}} = 50\text{V}, I_{\text{D}} = 1\text{A}, V_{\text{GS}} = 10\text{V}, R_{\text{G}} = 6\Omega$		3.98	10	ns
Turn-on rise time <sup>b</sup>	$t_r$			4.95	10	
Turn-off delay time <sup>b</sup>	$t_{\text{d}(\text{off})}$			18.52	40	
Turn-off fall time <sup>b</sup>	$t_f$			11.94	25	

**Notes:**

- a. Pulse Test : Pulse width $\leq 300\mu\text{s}$ , duty cycle  $\leq 2\%$ .  
b. These parameters have no way to verify.

## Typical Electrical and Thermal Characteristics



**DFN1×1-4L Package Information**
**DFN1×1-4L (0.49×0.49)**
**Unit:mm**


Dimensions In Millimeterer			
Symbol	MIN	TYP	MAX
A	0.950	1.000	1.050
B	0.320	0.370	0.420
C	0.950	1.000	1.050
D	0.600	0.650	0.700
E	0.175	0.225	0.275
F	0.170	0.220	0.270
G	0.440	0.490	0.540
H	0.440	0.490	0.540
I	0.140	0.190	0.240



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