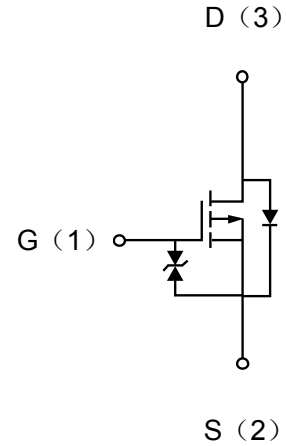


Description

The MOSFET provide the best combination of fast switching, low on-resistance and cost-effectiveness.

MOSFET Product Summary		
$V_{DS}(V)$	$R_{DS(on)}(\Omega)$	$I_D(mA)$
-20	0.6@ $V_{GS}=-4.5V$	±300
	0.9@ $V_{GS}=-2.5V$	
	1.5@ $V_{GS}=-1.8V$	


Absolute maximum rating@25°C

Parameter		Symbol	Value	Units
Drain-Source Voltage		V_{DS}	-20	V
Gate-Source Voltage		V_{GS}	±10	V
Continuous Drain Current($T_J=150^\circ C$)	Continuous	I_D	±300	mA
	Pulsed	I_{DP}	±800	
Source current(Body diode)	Continuous	I_S	-100	mA
	Pulsed	I_{SP}	-800	
Total power dissipation		P_D	150	mW
Channel temperature		T_{CH}	150	°C
Range of storage temperature		T_{STG}	-55 to +150	°C

Thermal resistance

Parameter	Symbol	Limits	Units
Channel to ambient	$R_{th}(ch-a)$	833	°C/W

Electrical characteristics per line @25°C (unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Drain-Source Breakdown Voltage	BV_{DSS}	$I_D = -1mA, V_{GS} = 0V$	-20		-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -20V, V_{GS} = 0V$	-	-	-1	μA
Gate-Body Leakage Current	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 8V$	-	-	± 10	μA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = -10V, I_D = -100\mu A$	-0.5	-	-1.1	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS} = -4.5V, I_D = -300mA$	-	0.6	1.0	Ω
		$V_{GS} = -2.5V, I_D = -200mA$	-	0.9	1.5	Ω
		$V_{GS} = -1.8V, I_D = -100mA$		1.5	2.2	Ω
Forward transfer admittance	$ Y_{fs} $	$V_{DS} = -10V, I_D = -200mA$	0.3			s
Input Capacitance	C_{ISS}	$V_{GS} = 0V, V_{DS} = -10V,$ $f = 1MHz$	-	110		pF
Output Capacitance	C_{OSS}		-	9		pF
Reverse Transfer Capacitance	C_{RSS}		-	5		pF
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = -10V, V_{GS} = -4.5V,$ $R_G = 10\Omega, R_L = 100\Omega$ $I_D = -100mA$	-	5		ns
Turn-Off Delay Time	$t_{d(off)}$		-	15		ns
Turn-On Rise Time	t_r		-	4		ns
Turn-On Fall Time	t_f		-	13		ns
Total Gate Charge	Q_g	$V_{DD} = -10V, V_{GS} = -4.5V,$ $I_D = -200mA$ $R_G = 10\Omega, R_L = 50\Omega$		1.4		nC
Gate-Source Charge	Q_{gs}			0.3		nC
Gate-Drain Charge	Q_{gd}			0.3		nC
Drain-Source Diode Forward Voltage	V_{SD}	$V_{GS} = 0V, I_S = -200mA$		-	-1.2	V

Typical Characteristics

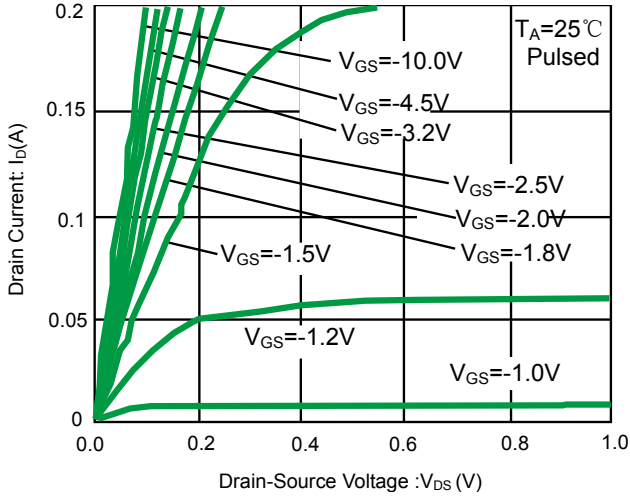


Fig 1. Typical output characteristics(I)

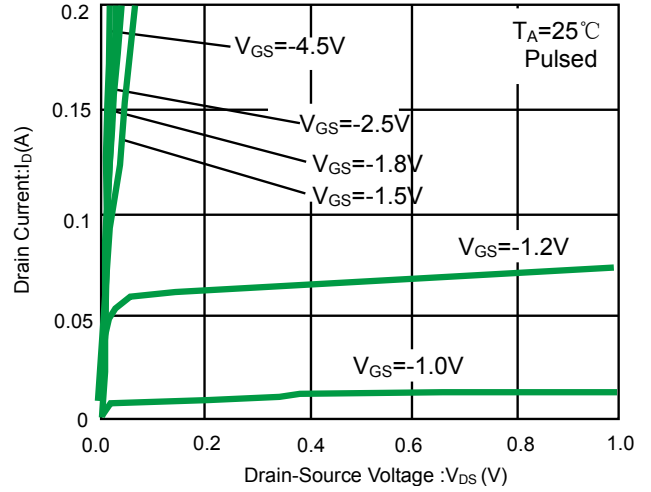


Fig 2. Typical output characteristics(II)

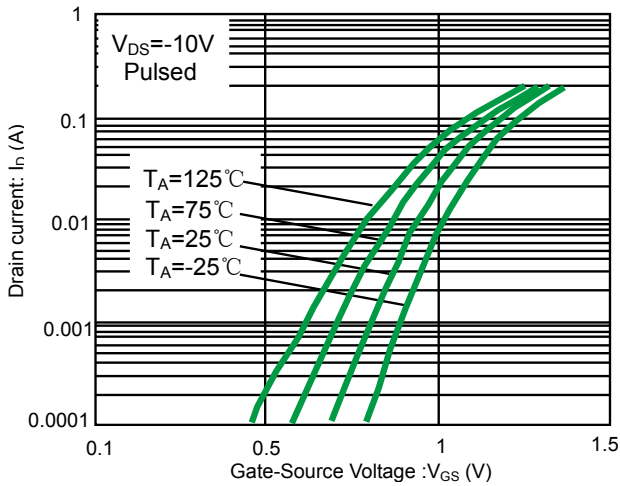


Fig 3. Typical transfer characteristics

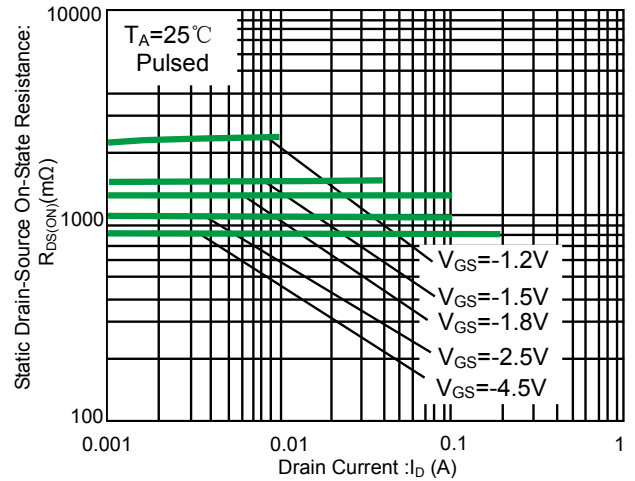


Fig 4. Static drain-source on-state resistance vs. drain current(I)

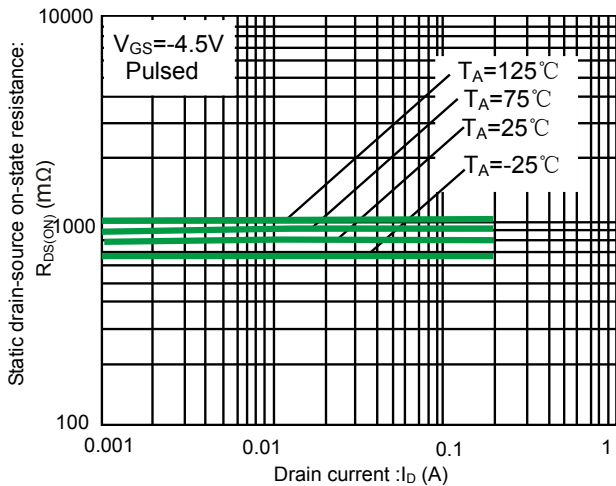


Fig 5. Static drain-source on-state resistance vs. drain current(II)

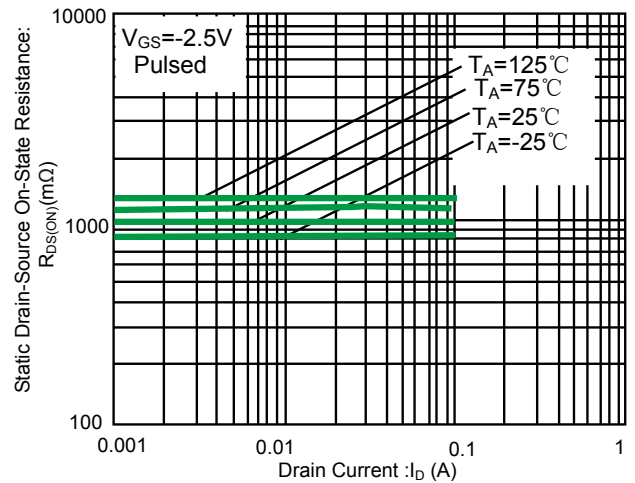


Fig 6. Static drain-source on-state resistance vs. drain current(III)

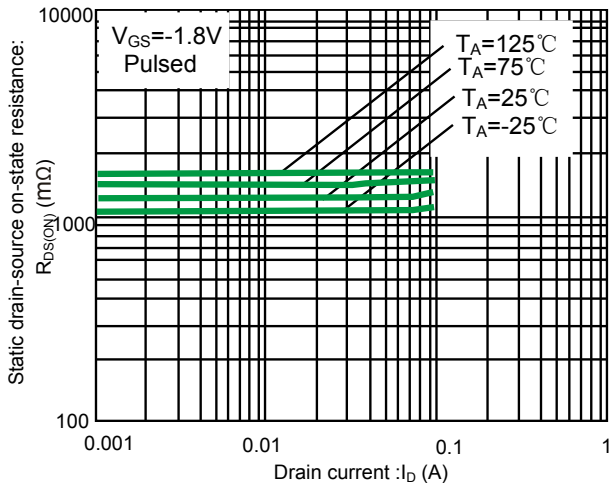


Fig 7. Static drain-source on-state resistance vs. drain current(IV)

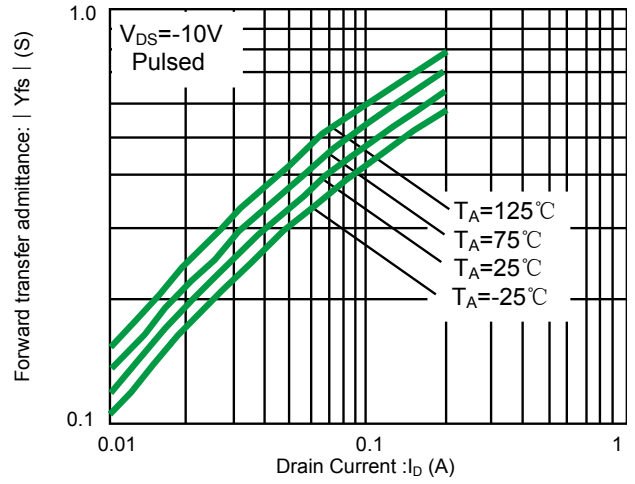


Fig 8. Forward transfer admittance vs. drain current

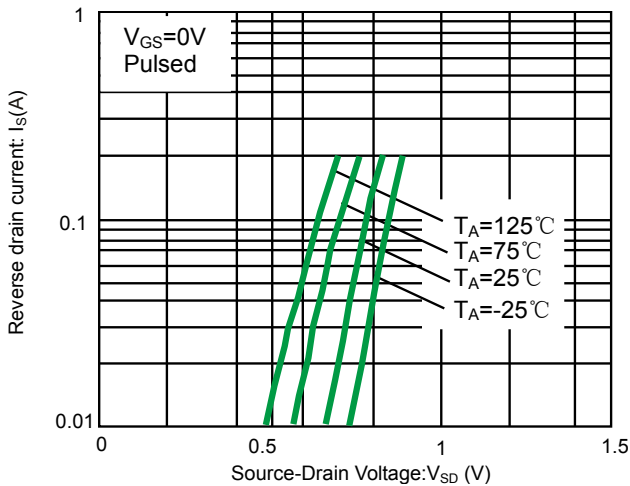


Fig 9. Reverse drain current vs. source-drain voltage

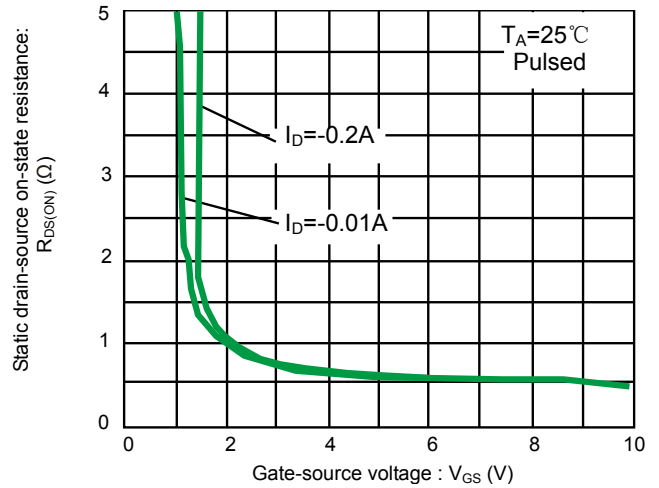


Fig 10. Static drain-source on-state resistance vs. gate source voltage

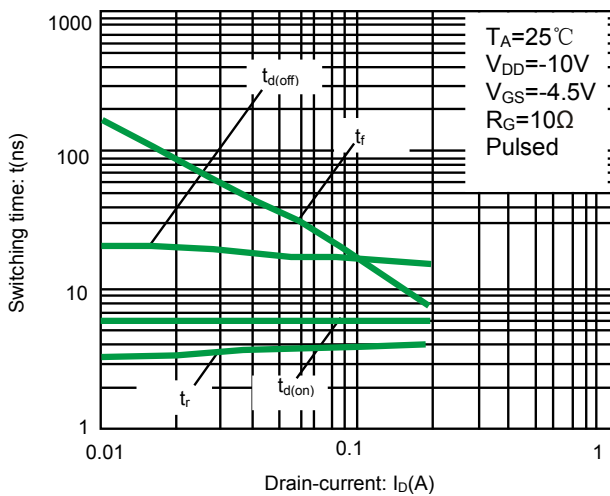


Fig 11. Switching characteristics

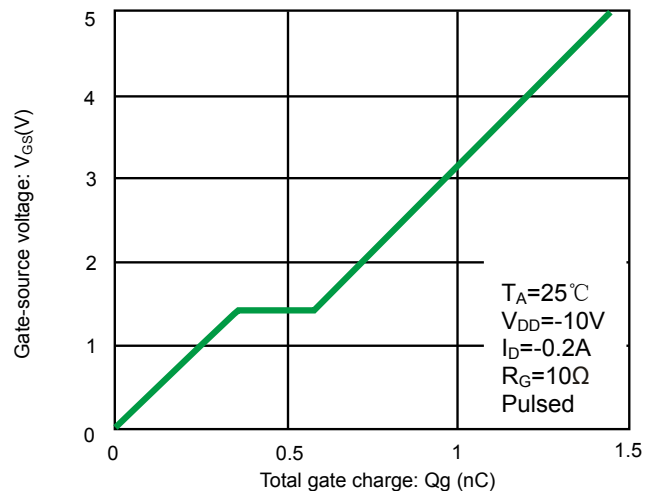


Fig 12. Dynamic input characteristics

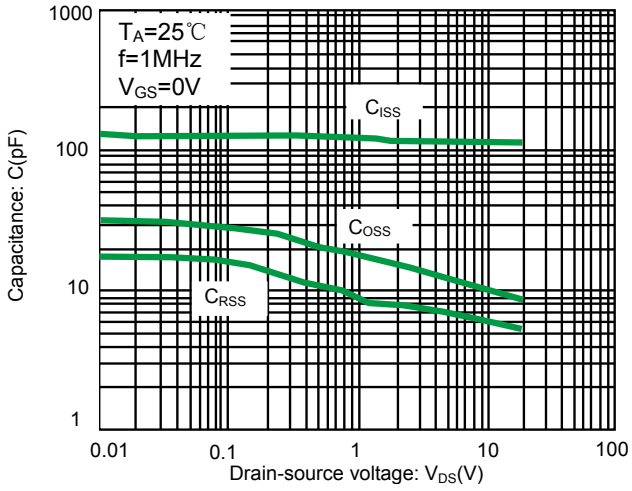


Fig 13. Typical capacitance vs. drain-source voltage

Measurement circuit

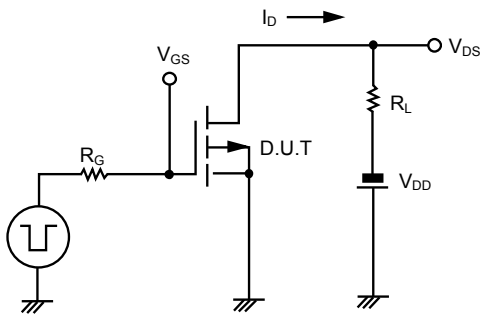


Fig.1-1 Switching time measurement circuit

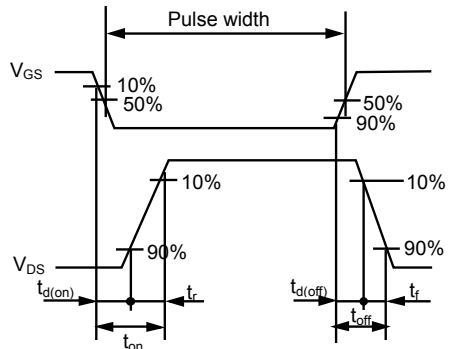


Fig.1-2 Switching time waveforms

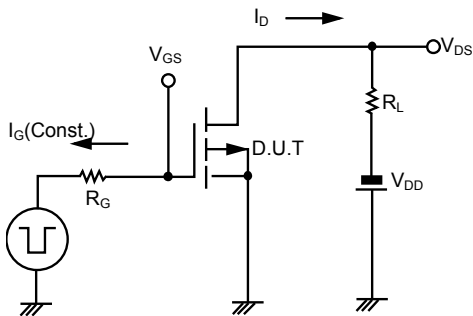


Fig.2-1 Gate charge measurement circuit

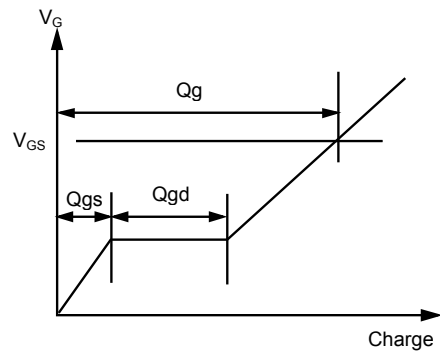
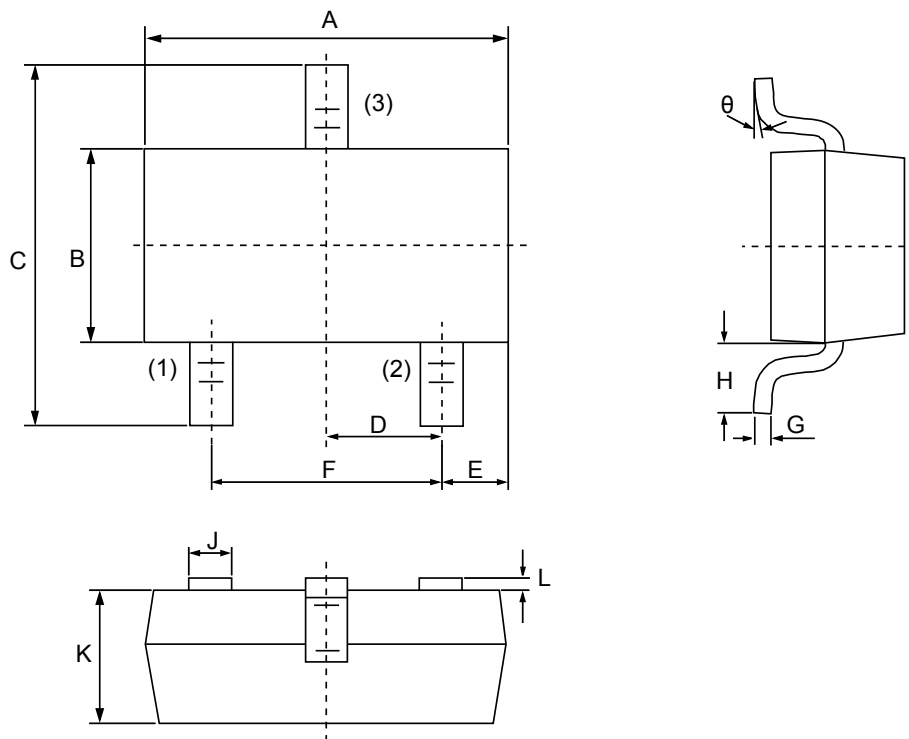


Fig.2-2 Gate charge waveform

Product dimension (SOT-523)




Dim	Millimeters		Inches	
	MIN	MAX	MIN	MAX
A	1.50	1.70	0.059	0.067
B	0.75	0.85	0.030	0.033
C	1.450	1.750	0.057	0.069
D	0.50BSC		0.020BSC	
E	0.30	0.33	0.012	0.015
F	0.900	1.100	0.035	0.043
G	0.100	0.200	0.004	0.008
H	0.550		0.022	
J	0.150	0.250	0.006	0.010
K	0.700	0.900	0.028	0.038
L	0.024	0.027	0.600	0.700
θ	0°	4°	0°	4°

Ordering information

Device	Package	Shipping
PPM523T201E0	SOT-523 (Pb-Free)	3000 / Tape & Reel


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