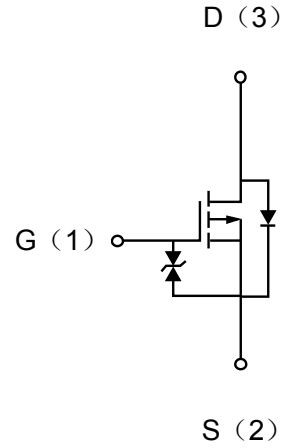


Description

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	0.45@ $V_{GS}=-4.5V$	-800
	0.62@ $V_{GS}=-2.5V$	
	0.86@ $V_{GS}=-1.8V$	



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	-800	mA
	Pulsed	I_{DP}	-1200	
Source current(Body diode)	Continuous	I_S	-500	mA
	Pulsed	I_{SP}	-1200	
Total power dissipation		P_D	150	mW
Channel temperature		T_{CH}	150	$^\circ C$
Range of storage temperature		T_{STG}	-55 to +150	$^\circ C$

Thermal resistance

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

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	$R_{DS(on)}$	$V_{GS} = -4.5V, I_D = -700mA$	-	0.45	0.7	Ω
		$V_{GS} = -2.5V, I_D = -300mA$	-	0.62	0.85	Ω
		$V_{GS} = -1.8V, I_D = -250mA$		0.86	1.2	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

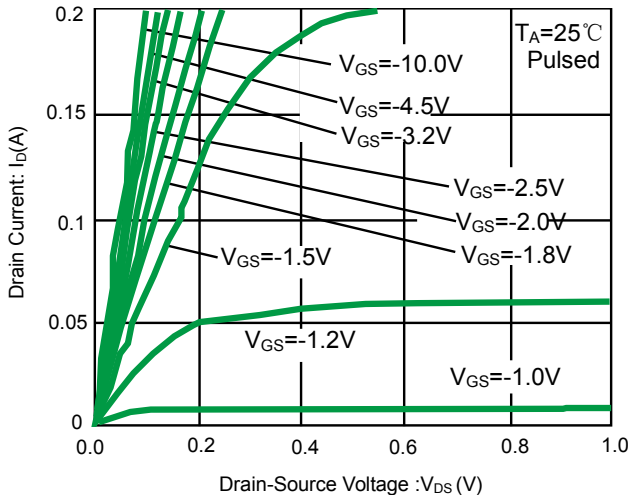


Fig 1. Typical output characteristics(I)

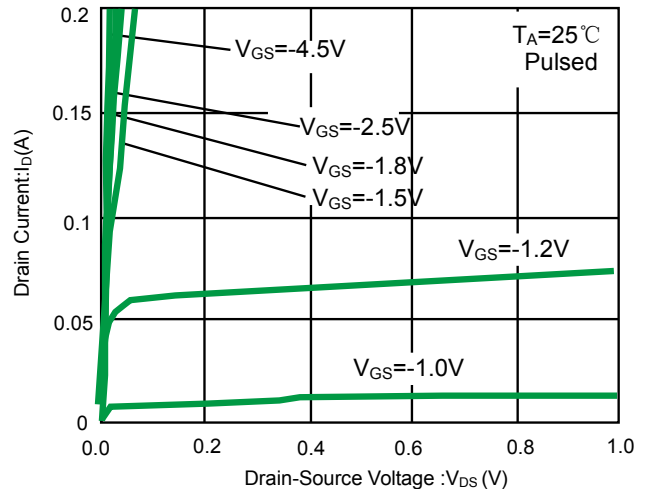


Fig 2. Typical output characteristics(II)

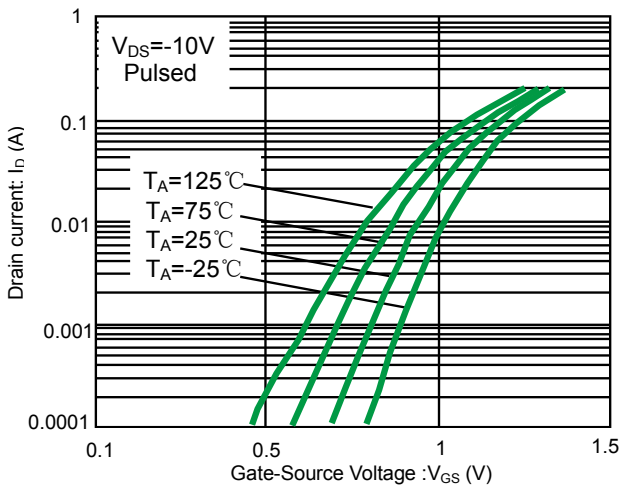


Fig 3. Typical transfer characteristics

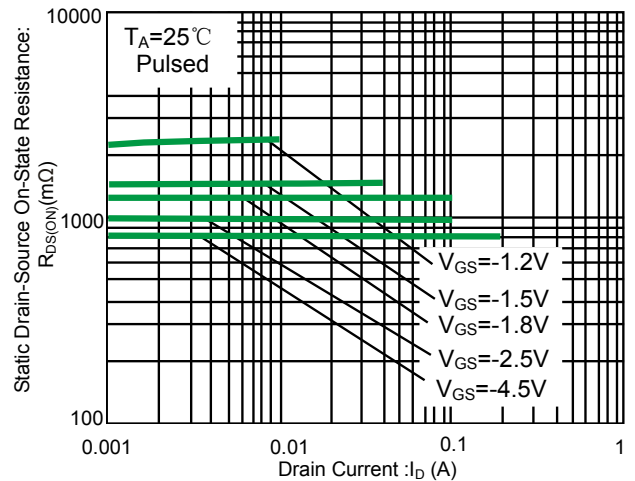


Fig 4. Static drain-source on-state resistance vs. drain current(I)

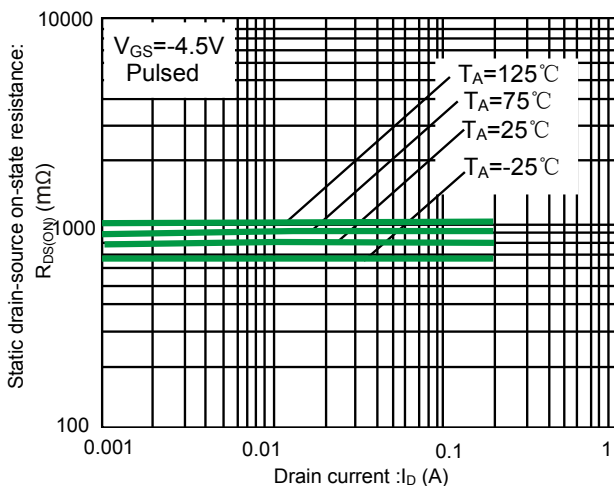


Fig 5. Static drain-source on-state resistance vs. drain current (II)

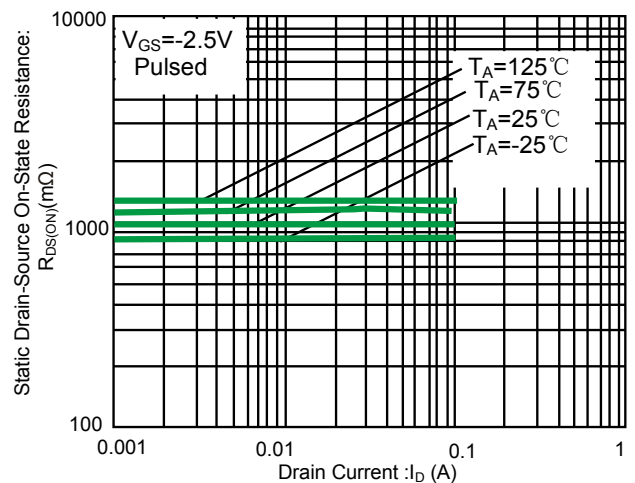


Fig 6. Static drain-source on-state resistance vs. drain current(III)

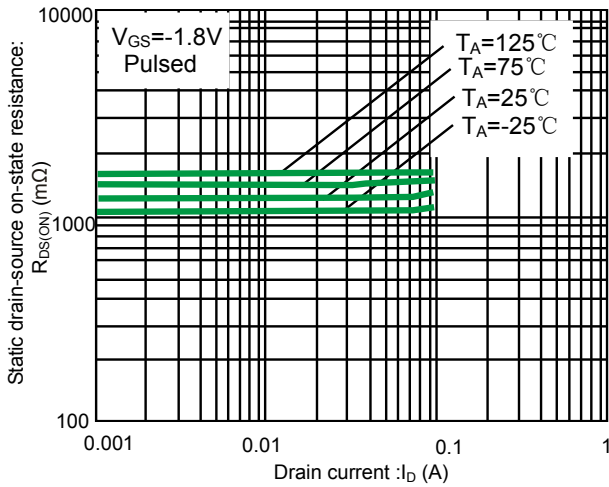


Fig 7. Static drain-source on-state resistance vs. drain current(IV)

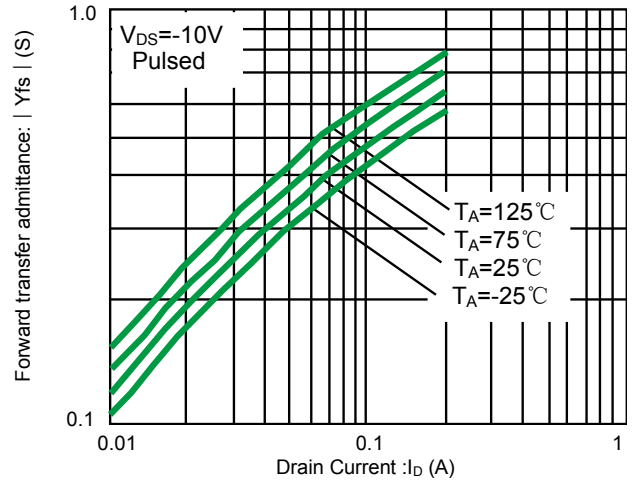


Fig 8. Forward transfer admittance vs. drain current

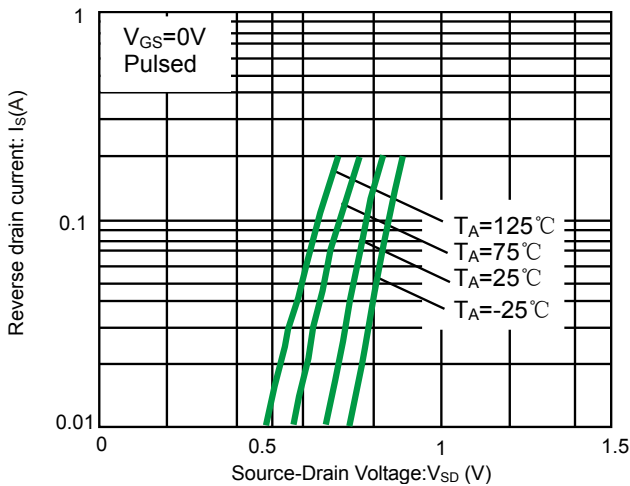


Fig 9. Reverse drain current vs. source-drain voltage

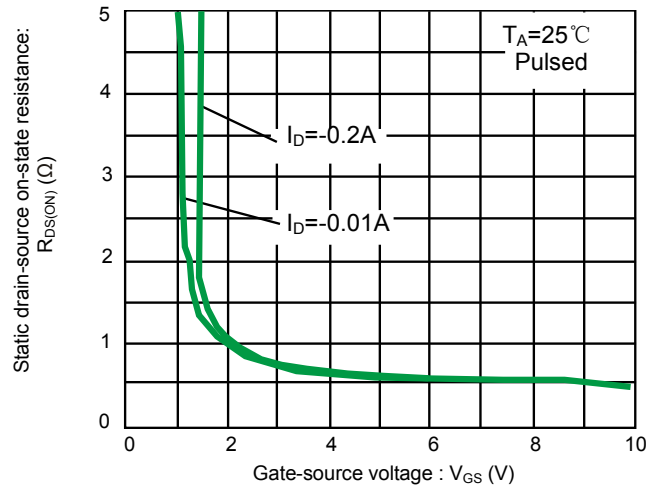


Fig 10. Static drain-source on-state resistance vs. gate source voltage

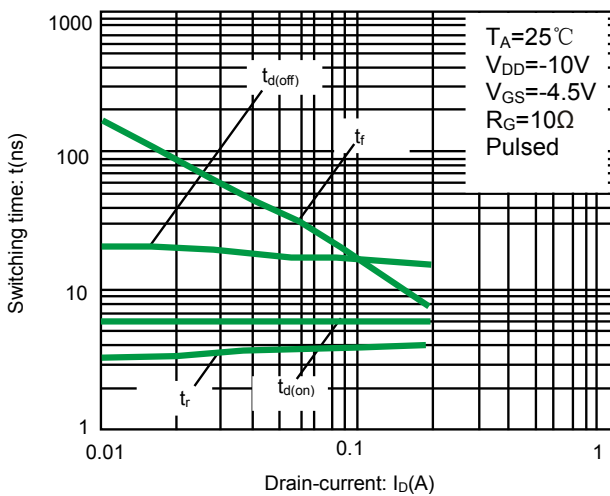


Fig 11. Switching characteristics

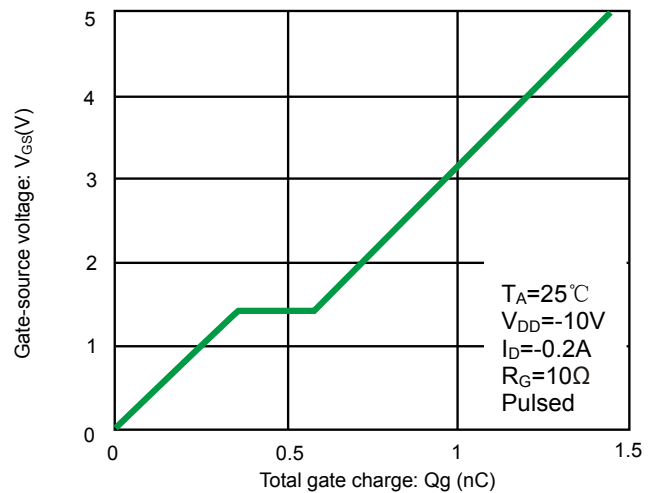


Fig 12. Dynamic input characteristics

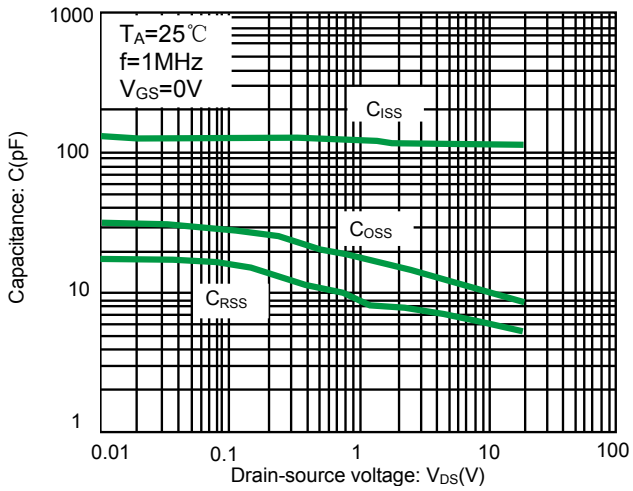


Fig 13. Typical capacitance vs. drain-source voltage

Measurement circuit

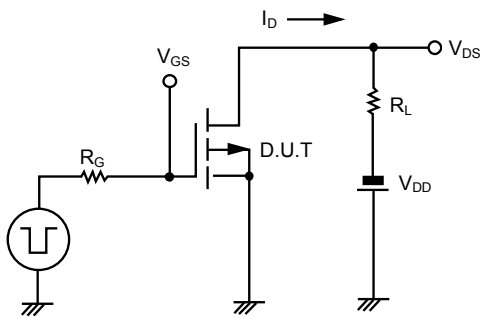


Fig.1-1 Switching time measurement circuit

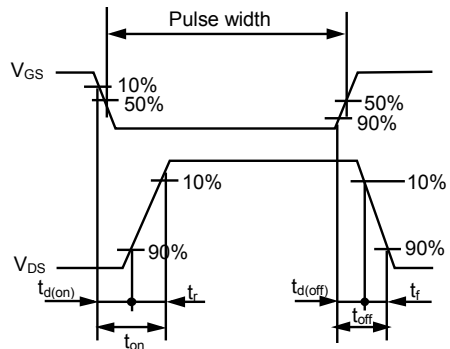


Fig.1-2 Switching time waveforms

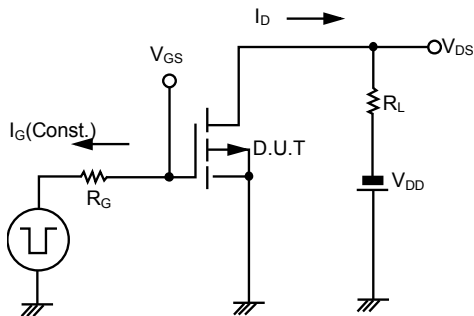


Fig.2-1 Gate charge measurement circuit

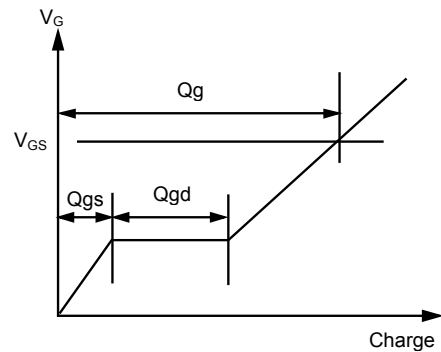
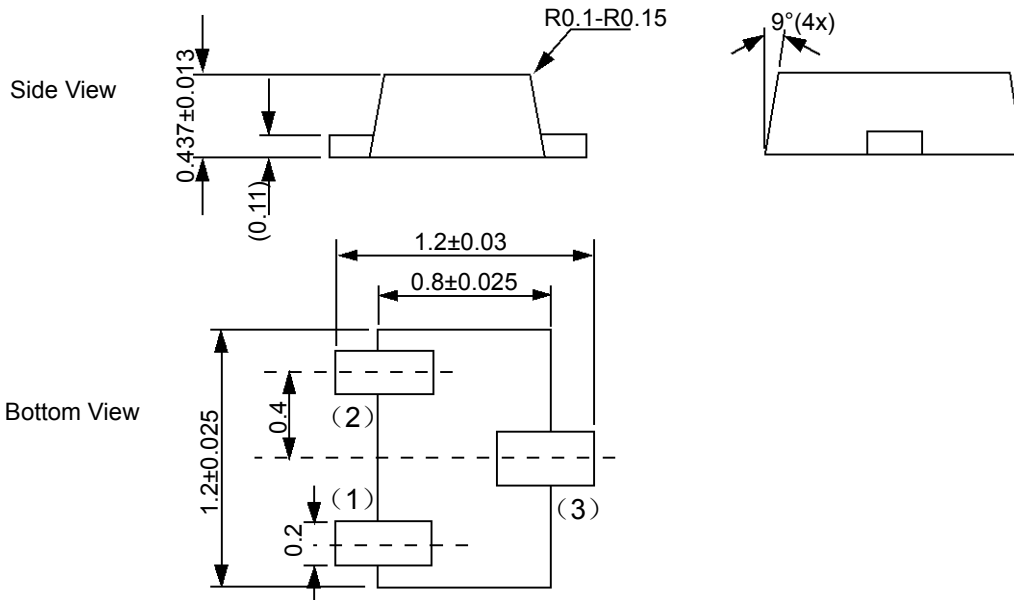
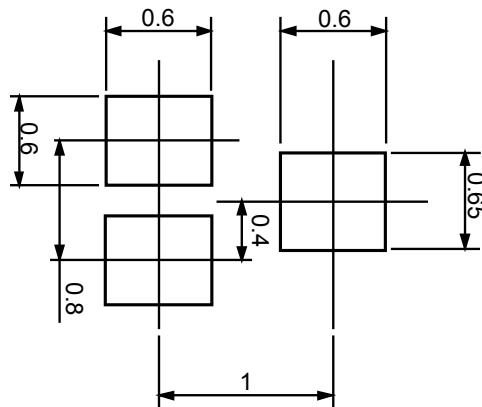


Fig.2-2 Gate charge waveform

Product dimension (SOT-723)



Unit: mm



Unit: mm

Ordering information

Device	Package	Shipping
HM2301BJR	SOT-723 (Pb-Free)	10000 / Tape & Reel