RSM002P03

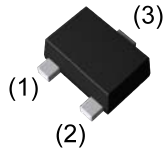
4V Dirve Pch MOSFET

Datasheet

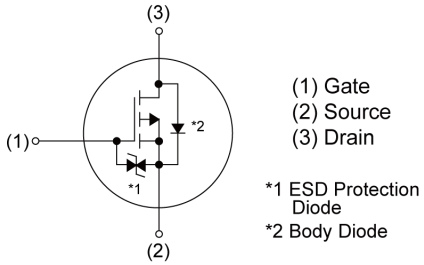
V_{DSS}	-30V
$R_{DS(on)}$(Max.)	1.4Ω
I_D	±0.2A
P_D	0.15W

●Outline

VMT3



●Inner circuit



●Features

1) Low on-resistance.
2) Small package (VMT3)
3) 4V drive.
4) Lead Free/RoHS Compliant.

●Application

Switching

●Packaging specifications

Type	Packing	Embossed Tape
	Reel size (mm)	180
	Tape width (mm)	8
	Basic ordering unit (pcs)	8000
	Taping code	T2L
	Marking	WP

●Absolute maximum ratings (T_a = 25°C)

Parameter	Symbol	Value	Unit
Drain - Source voltage	V_{DSS}	-30	V
Continuous drain current	I_D	±0.2	A
Pulsed drain current	$I_{D,pulse}$ *1	±0.4	A
Gate - Source voltage	V_{GSS}	±20	V
Power dissipation	P_D *2	0.15	W
Junction temperature	T_j	150	℃
Range of storage temperature	T_{stg}	-55 to +150	℃

●Thermal resistance

Parameter	Symbol	Value	Unit
junction - ambient	Rth(ch-a) *2	833	℃/W

●Electrical characteristics (T_a = 25°C)

Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
Drain - Source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = -1mA	-30	-	-	V
Zero gate voltage drain current	I_{DSS}	V_{DS} = -30V, V_{GS} = 0V	-	-	-1	μA
Gate - Source leakage current	I_{GSS}	V_{GS} = ±20V, V_{DS} = 0V	-	-	±10	μA
Gate threshold voltage	$V_{GS(th)}$	V_{DS} = -10V, I_D = -1mA	-1.0	-	-2.5	V
Static drain - source on - state resistance	$R_{DS(on)}$*3	V_{GS} = -10V, I_D = -0.2A	-	0.9	1.4	Ω
		V_{GS} = -4.5V, I_D = -0.15A	-	1.4	2.1	
		V_{GS} = -4.0V, I_D = -0.15A	-	1.6	2.4	
Transconductance	g_{fs}*3	V_{DS} = -10V, I_D = -0.15A	0.2	-	-	S
Input capacitance	C_{iss}	V_{GS} = 0V	-	30	-	pF
Output capacitance	C_{oss}	V_{DS} = -10V	-	4	-	
Reverse transfer capacitance	C_{rss}	f = 1MHz	-	5	-	
Turn - on delay time	$t_{d(on)}$*3	V_{DD} ≃ -15V, V_{GS} = -10V	-	8	-	ns
Rise time	t_r*3	I_D = 0.15A	-	5	-	
Turn - off delay time	$t_{d(off)}$*3	R_L = 100Ω	-	30	-	
Fall time	t_f*3	R_G = 10Ω	-	40	-	

●Body diode electirical characteristics (Source-Drain) (T_a = 25°C)

Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
Forward voltage	V_{SD}*3	V_{GS} = 0V, I_S = -0.1A	-	-	-1.2	V

*1 Pw ≤ 10μs, Duty cycle ≤ 1%

*2 Each teminal mounted on a recommended land

*3 Pulsed

●Electrical characteristic curves

Fig.1 Typical Capacitance vs. Drain - Source Voltage

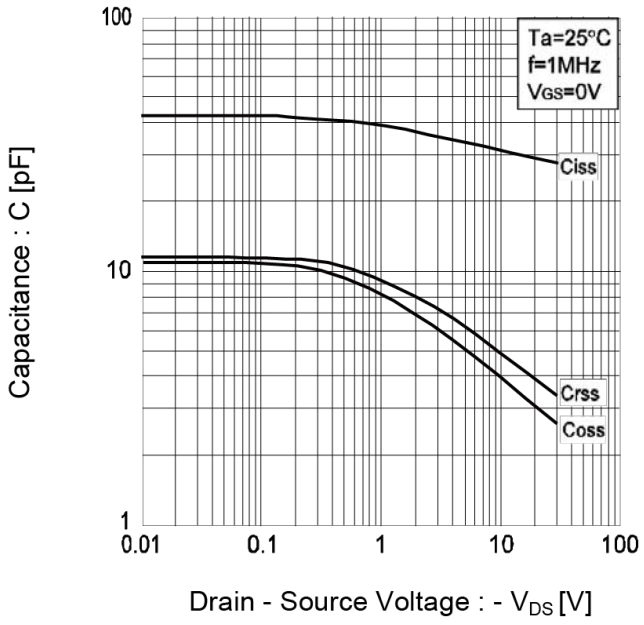


Fig.2 Switching Characteristics

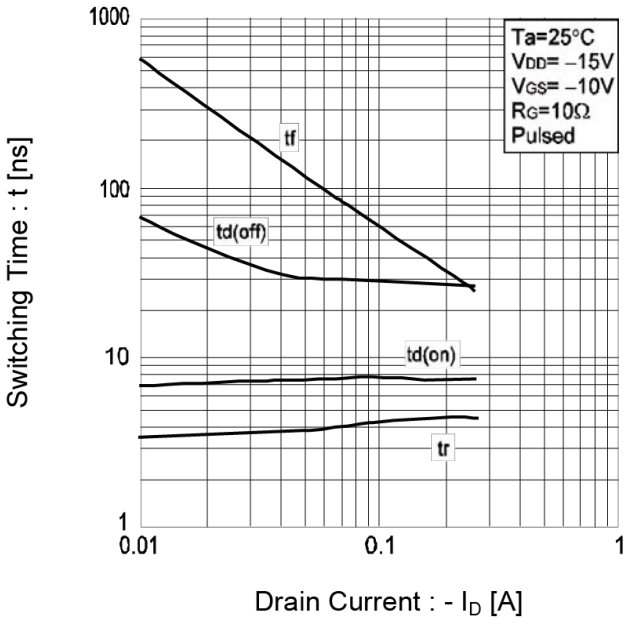


Fig.3 Dynamic Input Characteristics

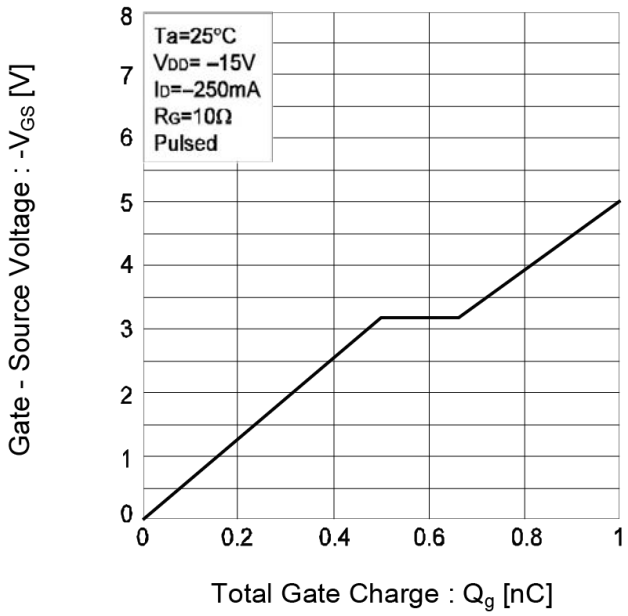
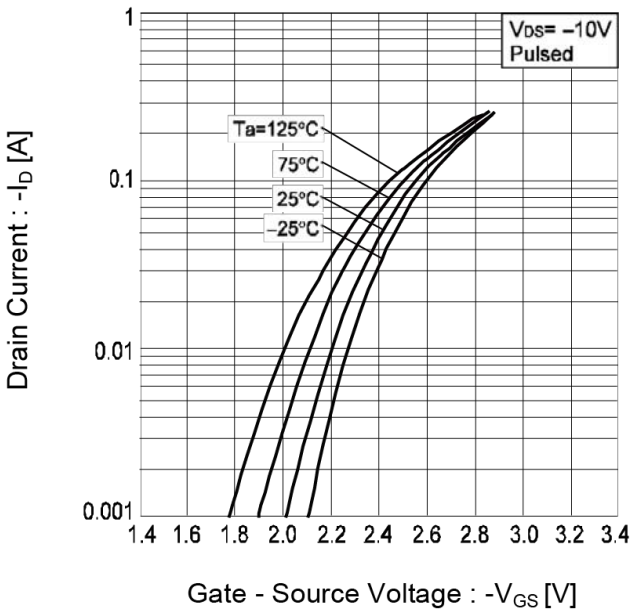


Fig.4 Typical Transfer Characteristics



●Electrical characteristic curves

Fig.5 Static Drain - Source On - State Resistance vs. Gate Source Voltage

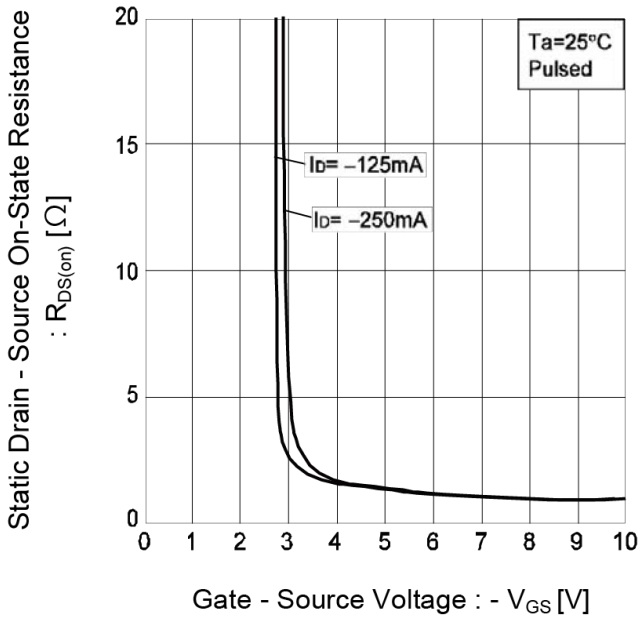


Fig.6 Source Current vs. Source Drain Voltage

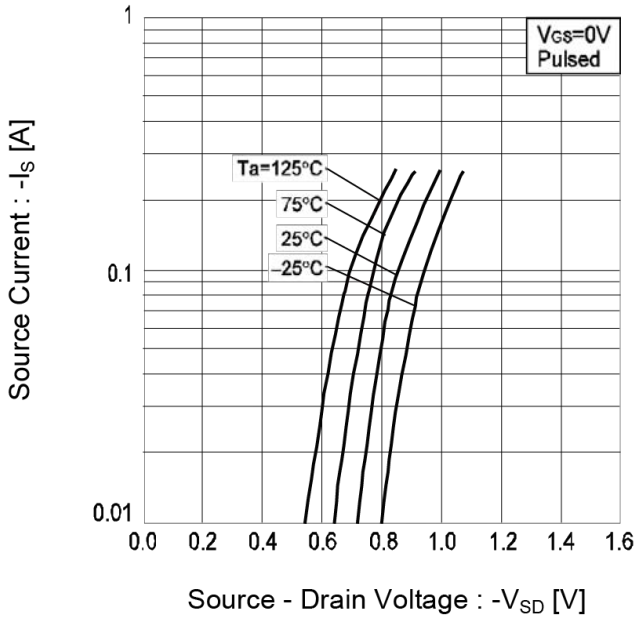


Fig.7 Static Drain - Source On - State Resistance vs. Drain Current (I)

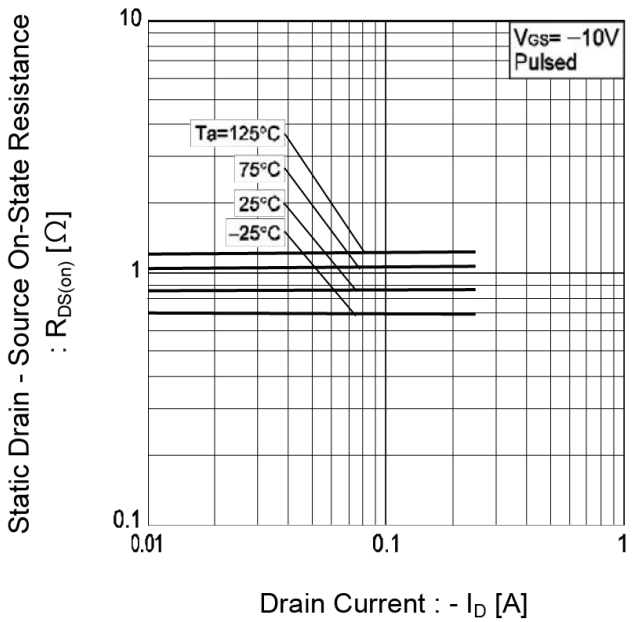
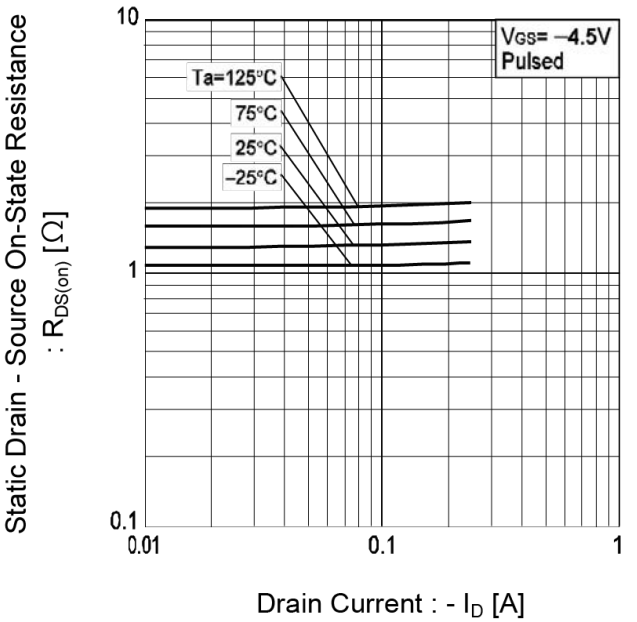


Fig.8 Static Drain - Source On - State Resistance vs. Drain Current (II)



●Electrical characteristic curves

Fig.9 Static Drain - Source On - State Resistance vs. Drain Current (III)

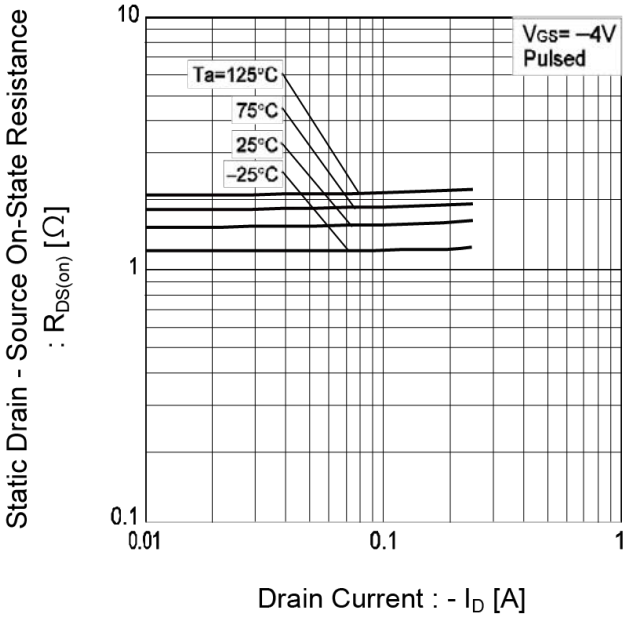
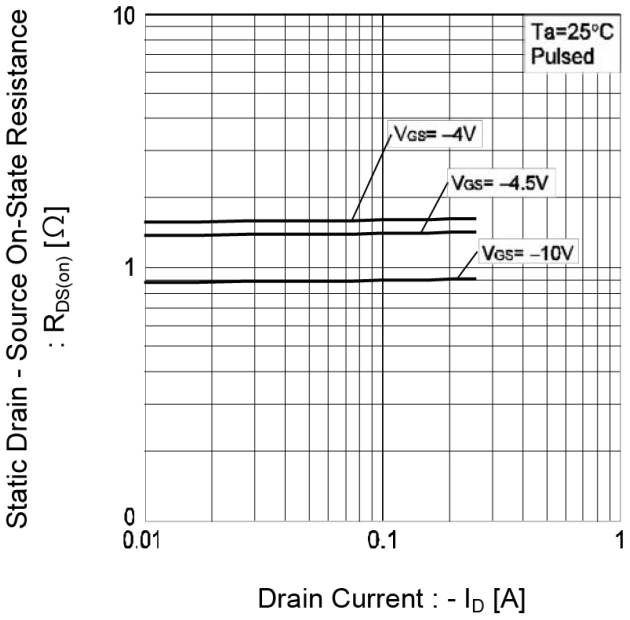


Fig.10 Static Drain - Source On - State Resistance vs. Drain Current (IV)



●Measurement circuits

Fig.1-1 Switching Time Measurement Circuit

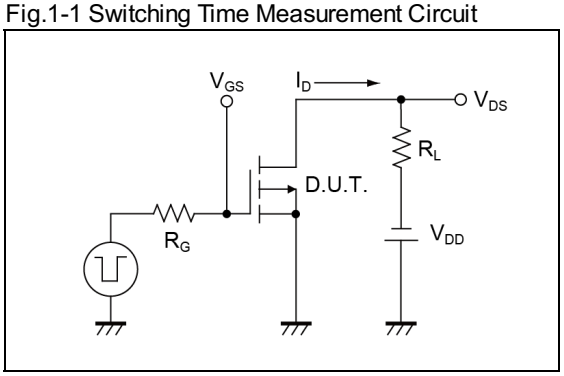
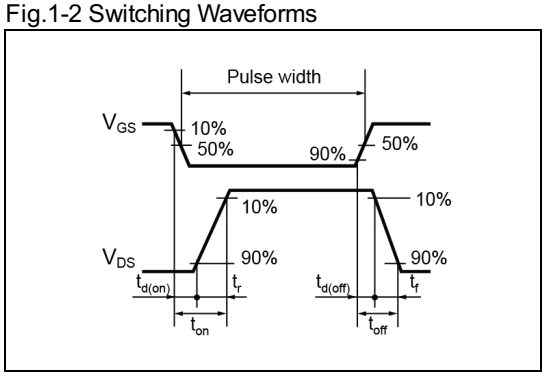
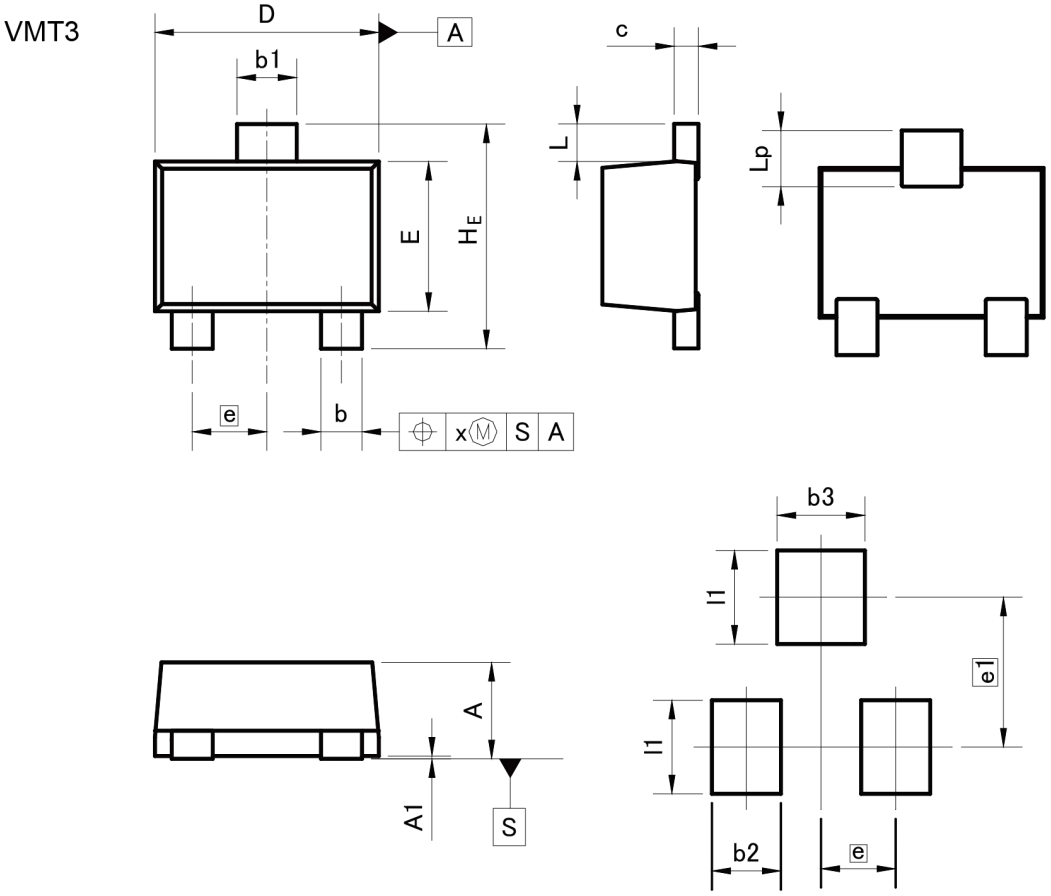


Fig.1-2 Switching Waveforms



●Dimensions

VMT3



Pattern of terminal position areas
[Not a recommended pattern of soldering pads]

DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.45	0.55	0.018	0.022
A1	0.00	0.10	0.000	0.004
b	0.17	0.27	0.007	0.011
b1	0.27	0.37	0.011	0.015
c	0.08	0.18	0.003	0.007
D	1.10	1.30	0.043	0.051
E	0.70	0.90	0.028	0.035
e	0.40		0.02	
HE	1.10	1.30	0.043	0.051
L	0.10	0.30	0.004	0.012
Lp	0.20	0.40	0.008	0.016
x	−	0.10	−	0.004

DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
b2	−	0.37	−	0.015
b3	−	0.47	−	0.019
e1	0.80		0.031	
l1	−	0.50	−	0.020

Dimension in mm/inches

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