

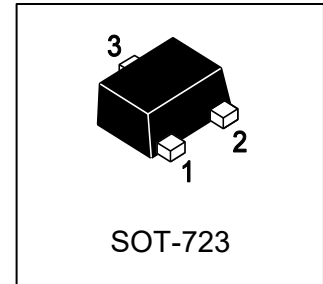
2N7002M

S-2N7002M

115 mA, 60V Small Signal MOSFET

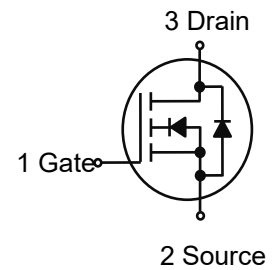
1. FEATURES

- Pb-Free Package is Available.
- We declare that the material of product compliance with RoHS requirements and Halogen Free.
- S- prefix for automotive and other applications requiring unique site and control change requirements; AEC-Q101 qualified and PPAP capable.



2. DEVICE MARKING AND ORDERING INFORMATION

Device	Marking	Shipping
2N7002M	72	8000/Tape&Reel
S-2N7002M	72	8000/Tape&Reel



3. MAXIMUM RATINGS(Ta = 25°C)

Parameter	Symbol	Limits	Unit
Drain-Source Voltage	VDSS	60	V
Gate-Source Voltage - Continuous	VGS	±20	V
Drain Current - Continuous TC = 25°C(Note 1) - Pulsed (t < 10µs)	ID IDM	115 800	mA

4. THERMAL CHARACTERISTICS

Parameter	Symbol	Limits	Unit
Total Device Dissipation, FR-5 Board (Note 2) @ TA = 25°C Derate above 25°C	PD	150 1.2	mW mW/°C
Thermal Resistance, Junction-to-Ambient	RθJA	833	°C/W
Junction and Storage temperature	TJ, Tstg	-55~+150	°C

1. The Power Dissipation of the package may result in a lower continuous drain current.
2. FR-5 = 1.0×0.75×0.062 in.



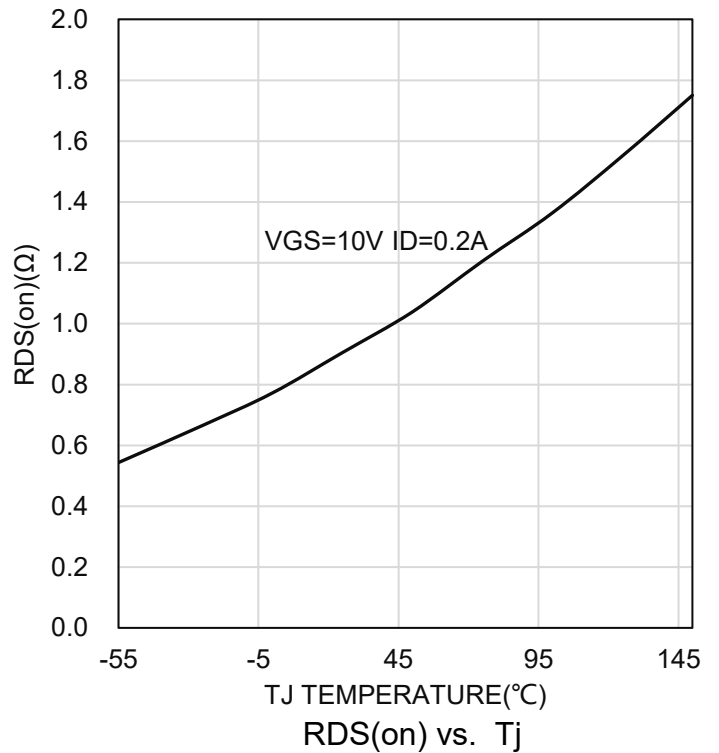
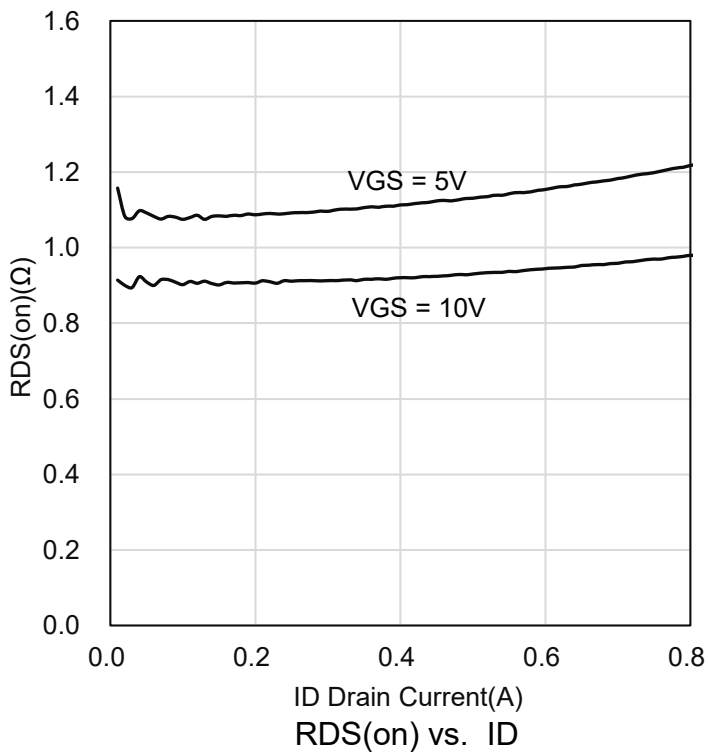
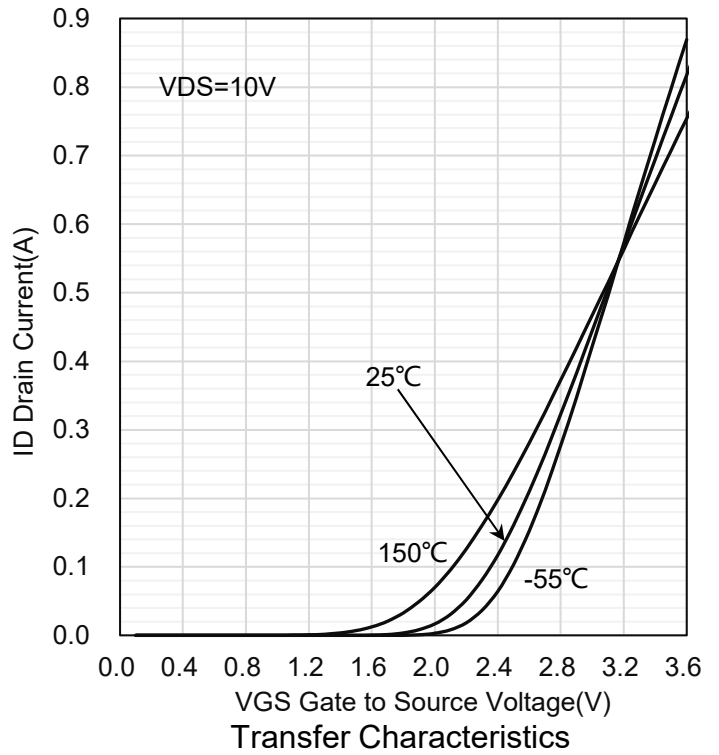
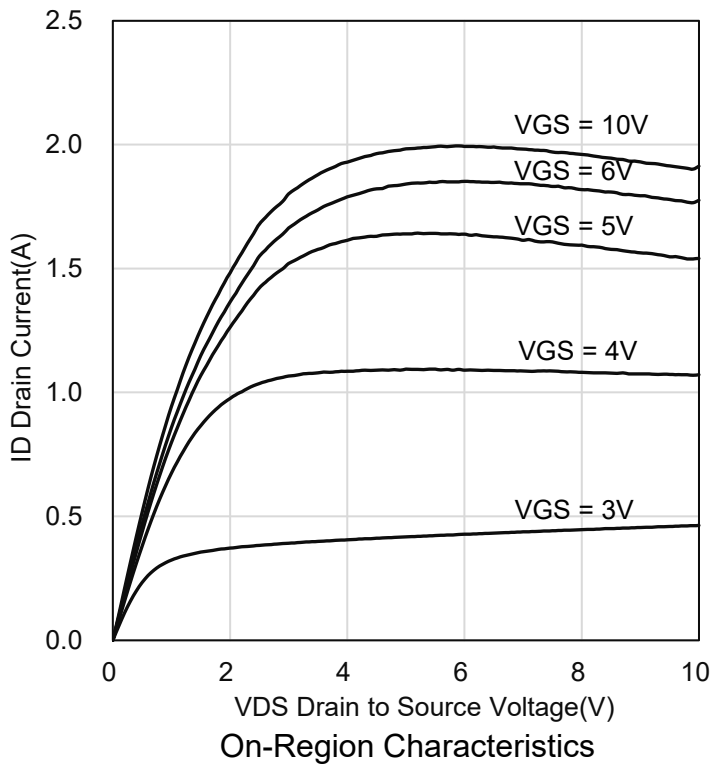
5. ELECTRICAL CHARACTERISTICS (Ta= 25°C)

Characteristic	Symbol	Min.	Typ.	Max.	Unit
Drain–Source Breakdown Voltage (VGS = 0, ID = 10μA)	VBRDSS	60	-	-	V
Zero Gate Voltage Drain Current (VGS = 0, VDS = 60 V)	IDSS	-	-	1	μA
		-	-	500	
Gate–Body Leakage Current (VGS = ±20 V, VDS = 0V)	IGSS	-	-	±100	nA
Gate Threshold Voltage (VDS = VGS, ID = 250μA)	VGS(th)	1	1.8	2.2	V
Static Drain–Source On–State Voltage (VGS = 10 V, ID = 500 mA)	VDS(on)	-	-	3.75	V
		-	-	0.375	
Static Drain–Source On–State Resistance(Note 3) (ID = 0.5A, VGS = 10V)	RDS(on)	-	-	4	Ω
		-	-	4	
Input Capacitance (VDS = 25 V, VGS = 0, f = 1.0 MHz)	Ciss	-	17	50	pF
Output Capacitance (VDS = 25 V, VGS = 0, f = 1.0 MHz)	Coss	-	10	25	
Reverse Transfer Capacitance (VDS = 25 V, VGS = 0, f = 1.0 MHz)	Crss	-	2.5	5	
Turn-On Delay Time	(VDD = 25 V, ID = 500 mA, RG = 25Ω, RL = 50 Ω, VGEN = 10 V)	td(on)	-	7	ns
Turn-Off Delay Time		td(off)	-	11	
Diode Forward On–Voltage (IS = 115 mA, VGS = 0 V)	VSD	-	-	1.5	V
Source Current Continuous	IS	-	-	115	mA
Source Current Pulsed	ISM	-	-	800	mA

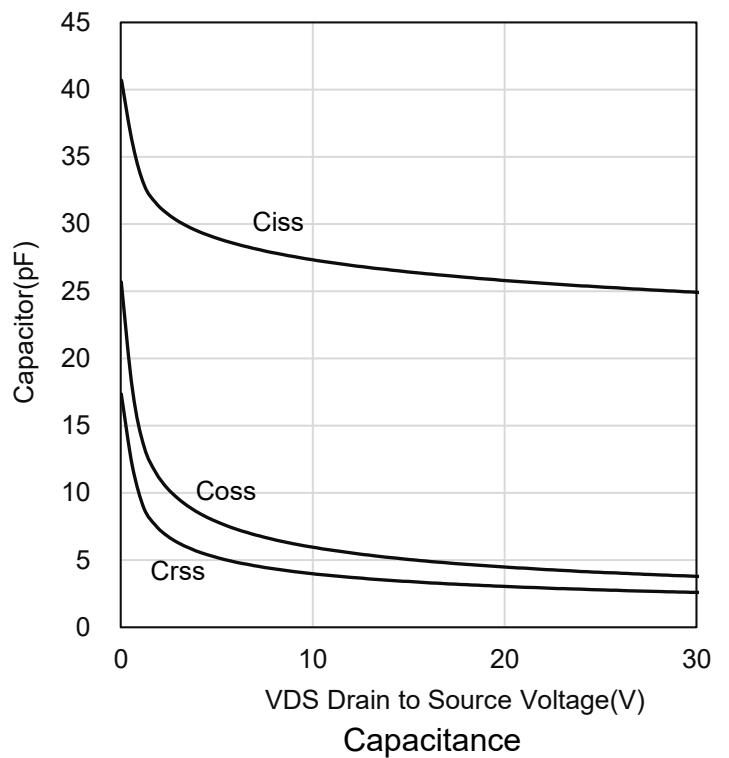
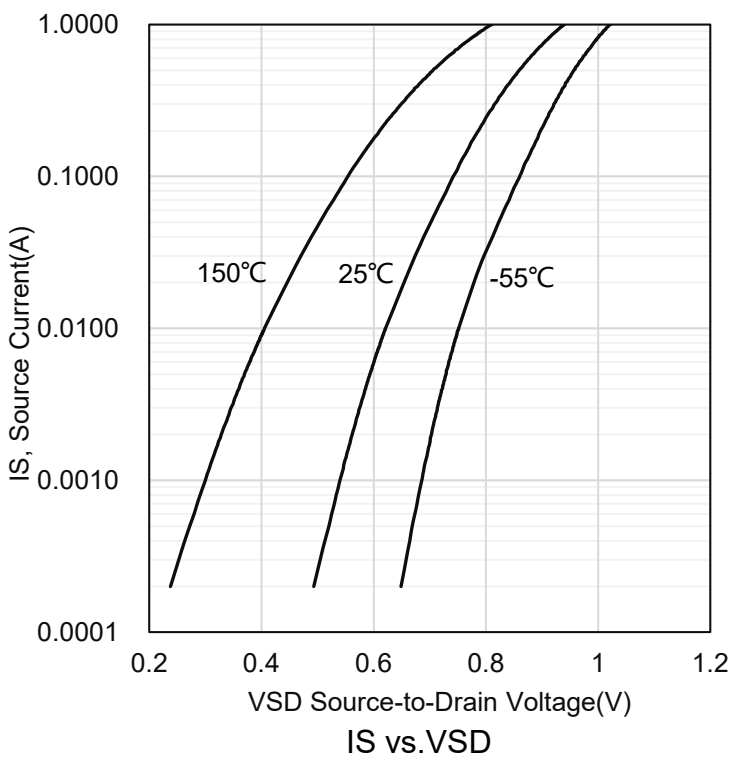
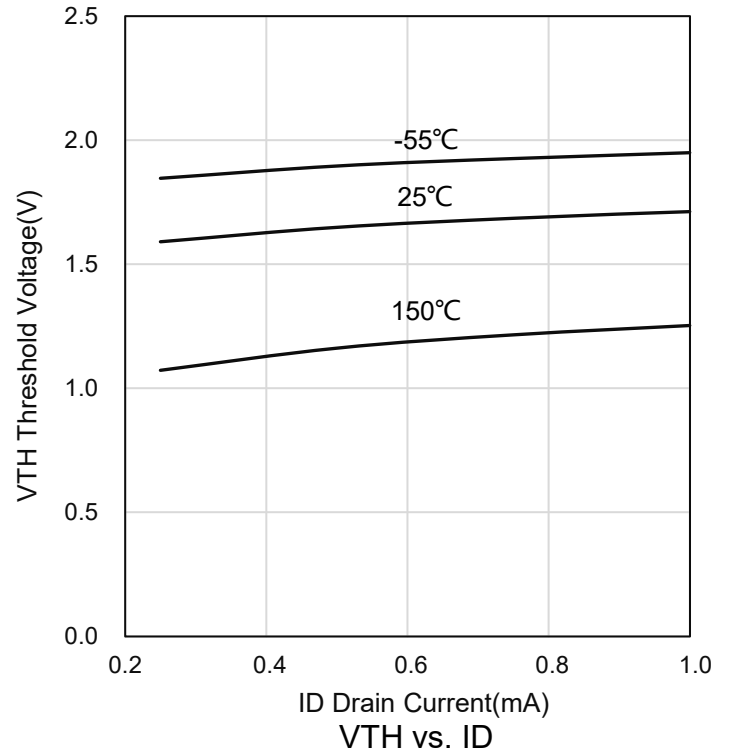
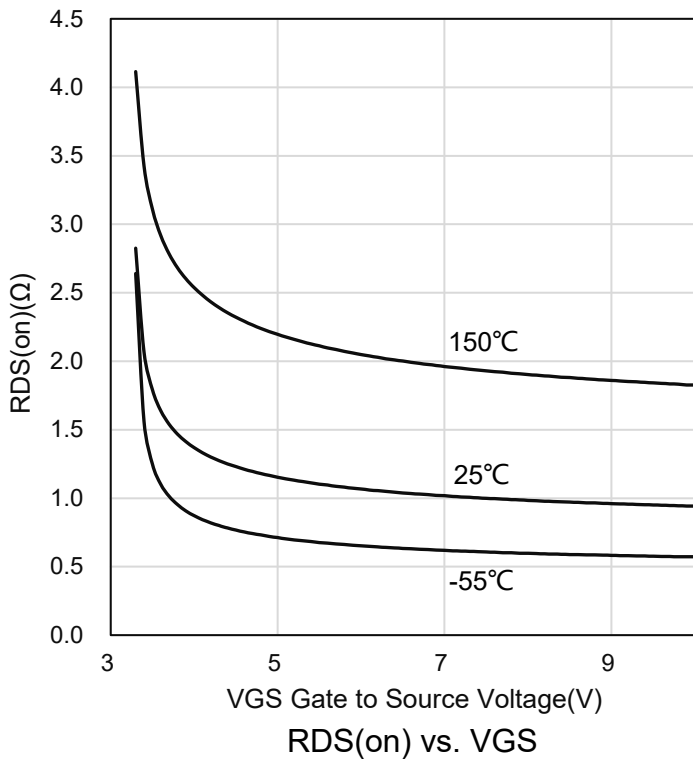
3.Pulse Test: Pulse Width ≤300 μs, Duty Cycle ≤2.0%.



6. ELECTRICAL CHARACTERISTICS CURVES



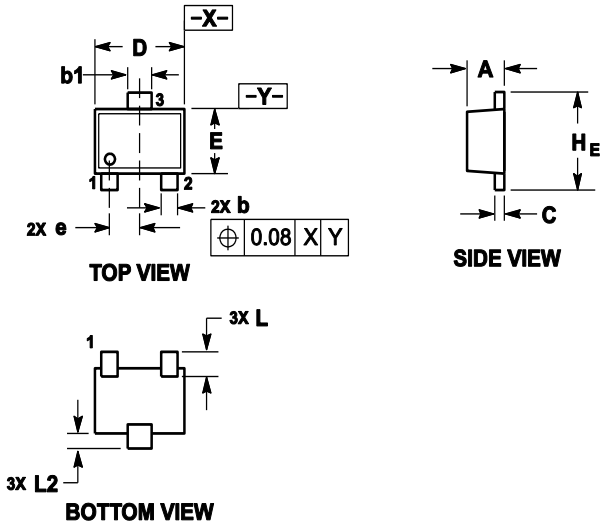
6. ELECTRICAL CHARACTERISTICS CURVES(Con.)



7. OUTLINE AND DIMENSIONS

Notes:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.



DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.45	0.50	0.55	0.018	0.020	0.039
b	0.15	0.21	0.27	0.006	0.008	0.011
b ₁	0.25	0.31	0.37	0.010	0.012	0.015
C	0.07	0.12	0.17	0.003	0.005	0.007
D	1.15	1.20	1.25	0.045	0.047	0.049
E	0.75	0.80	0.85	0.030	0.031	0.033
e	0.40REF			0.016REF		
H _E	1.15	1.20	1.25	0.045	0.047	0.049
L	0.29REF			0.011REF		
L ₂	0.15	0.20	0.25	0.006	0.008	0.010

8. SOLDERING FOOTPRINT

