K P 5635EVU

N-Channel 20V (D-S) MOSFET

GENERAL DESCRIPTION

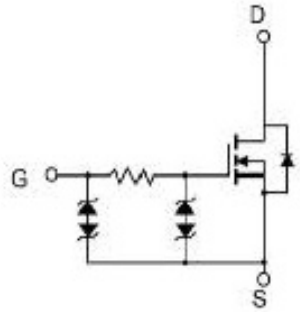
The HM2302BSR is the N-Channel logic enhancement mode power field effect transistors are produced using high cell density, DMOS trench technology. This high density process is especially tailored to minimize on-state resistance.

FEATURES

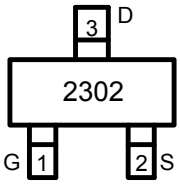
- $R_{DS(ON)}$= 270 mΩ @V_{GS}=4.5V
- $R_{DS(ON)}$= 330 mΩ @V_{GS}=2.5V
- $R_{DS(ON)}$= 450 mΩ @V_{GS}=1.8V
- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability
- Capable doing Cu wire bonding

APPLICATIONS

- Power Management in Note book
- Portable Equipment
- Battery Powered System
- Load Switch



N-Channel



Marking and pin Assignment

SOT-523 top view

Absolute Maximum Ratings (T_A=25℃ Unless Otherwise Noted)

Parameter	Symbol	Maximum Ratings	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	±8	V

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Parameter	Symbol	Maximum Ratings	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	±8	V

Electrical Characteristics (T_j =25℃ Unless Otherwise Specified)

Symbol	Parameter	Limit	Min	Typ	Max	Unit
STATIC						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=250μA	20			V
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=250μA	0.45		1.2	V
I_{GSS}	Gate Leakage Current	V_{DS}=0V, V_{GS}=±8V			±10	μA
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=20V, V_{GS}=0V			1	μA
$R_{DS(ON)}$	Drain-Source On-Resistance[a]	V_{GS}=4.5V, I_D=890mA		220	270	mΩ
		V_{GS}=2.5V, I_D=780mA		260	330	
		V_{GS}=1.8V, I_D=700mA		330	450	
V_{SD}	Diode Forward Voltage	I_S=350mA, V_{GS}=0V		0.75	1.2	V
DYNAMIC						
Ciss	Input Capacitance	V_{DS}=15V, V_{GS}=0V, f=1MHZ		21		pF
Coss	Output Capacitance			15		
Crss	Reverse Transfer Capacitance			8		
Qg	Total Gate Charge	V_{DS}=25V, V_{GS}=10V, I_D=0.22A		6.7		nC
Qgs	Gate-Source Charge			1.2		
Qgd	Gate-Drain Charge			0.9		
$t_{d(on)}$	Turn-On Delay Time	V_{DD}=10V, R_L =3Ω V_{GEN}=10V,R_G=10Ω		120		ns
tr	Turn-On Rise Time			317		
$t_{d(off)}$	Turn-Off Delay Time			748		
t_f	Turn-Off Fall Time			716		

Notes: a. Based on epoxy or solder paste and bond wire Cu wire 1mil×1(S), Cu wire 1mil×1(G) on each die of SOT-523 package.

b. Pulse test; pulse width ≦ 300us, duty cycle≦ 2%.

c. Force mos reserves the right to improve product design, functions and reliability without notice.

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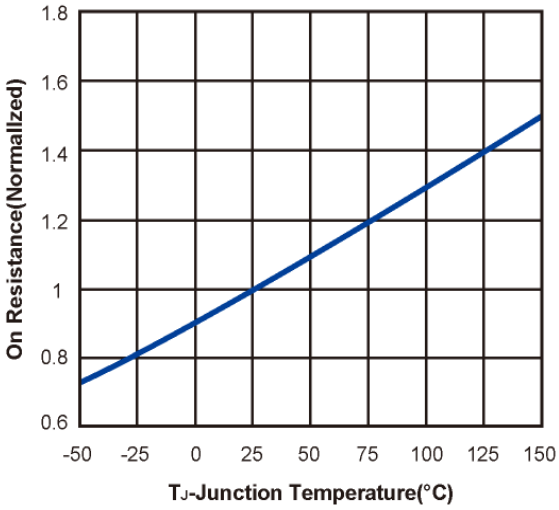
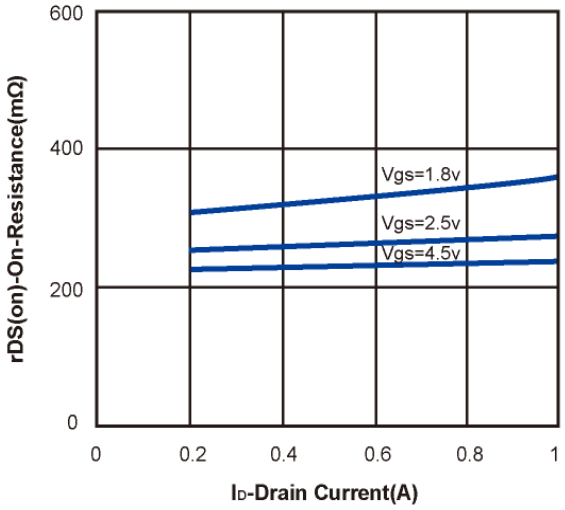
Typical Characteristics (T_J =25℃ Noted)

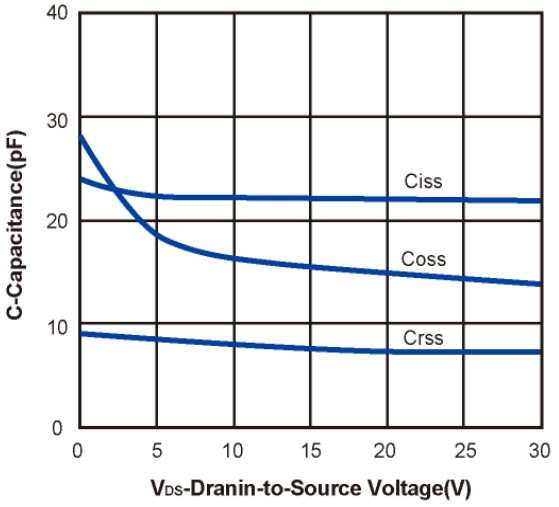
On Resistance vs. Junction Temperature



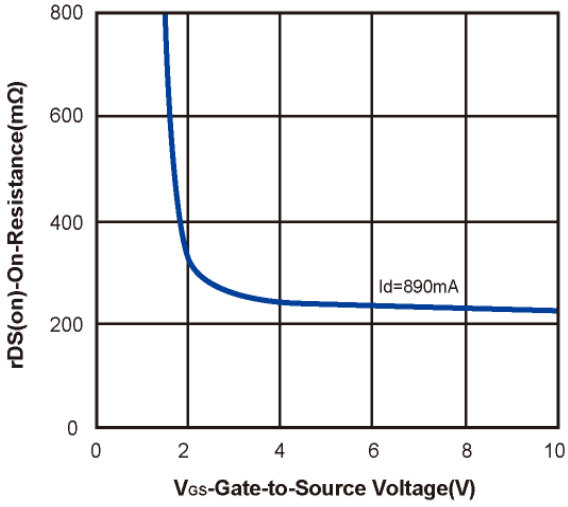
On Resistance vs. Drain Current



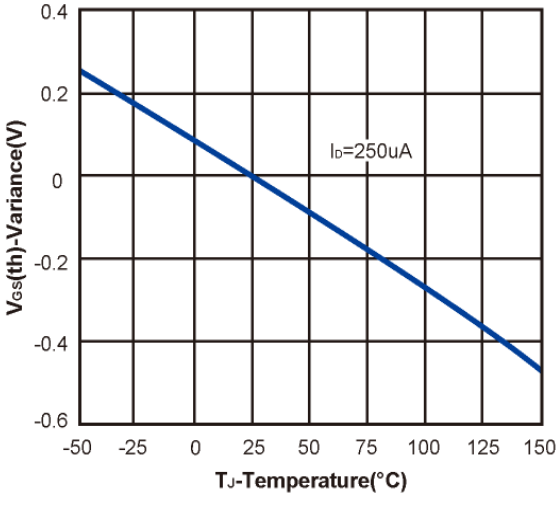
Capacitance



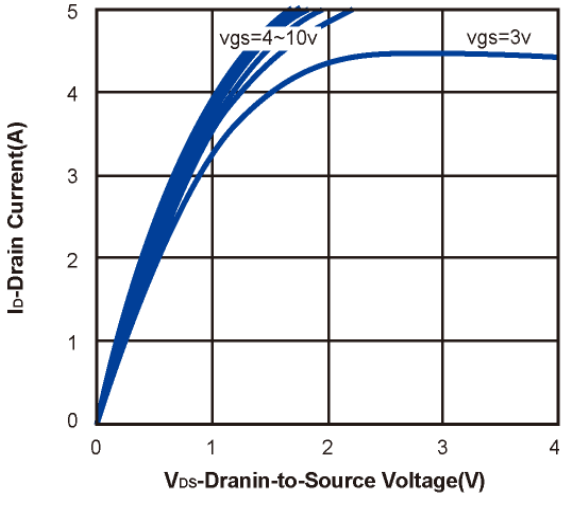
On Resistance vs. Gate-to-Source Voltage



Threshold Voltage



On-Region Characteristics



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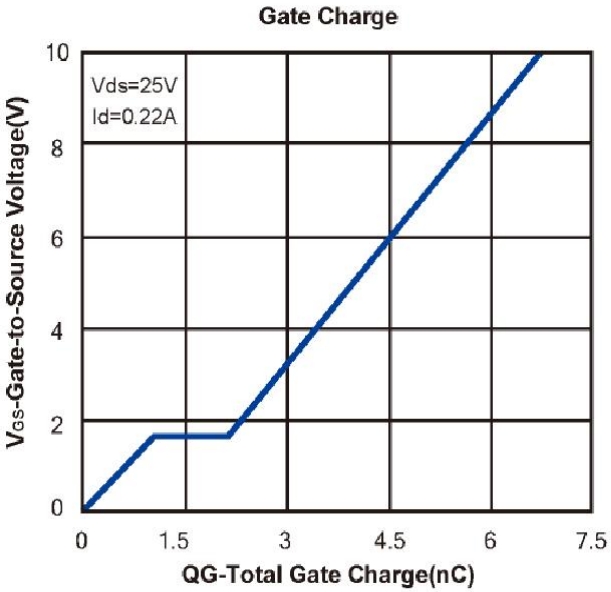

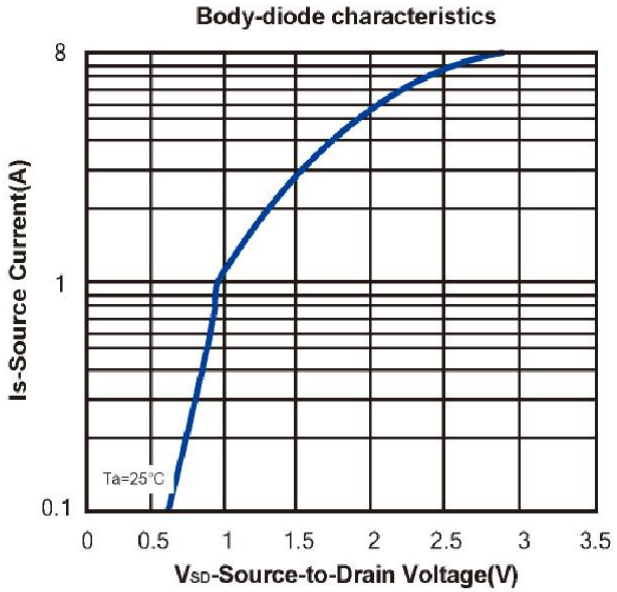

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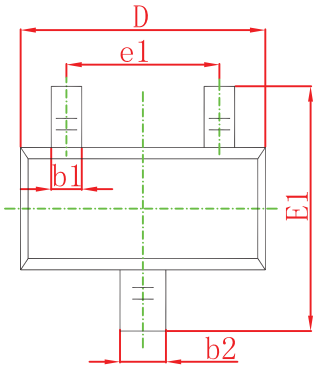
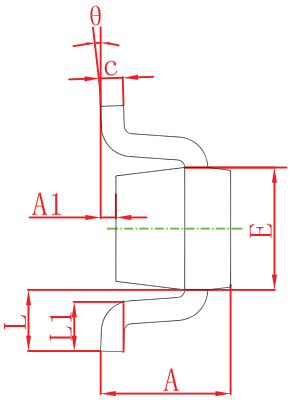
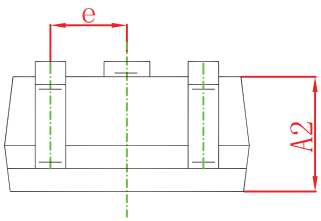
SOT-523 Package Outline Dimensions

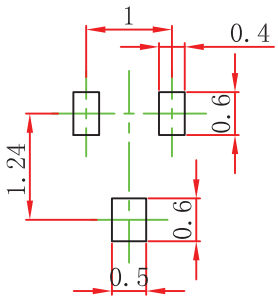






Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700	0.900	0.028	0.035
A1	0.000	0.100	0.000	0.004
A2	0.700	0.800	0.028	0.031
b1	0.150	0.250	0.006	0.010
b2	0.250	0.350	0.010	0.014
c	0.100	0.200	0.004	0.008
D	1.500	1.700	0.059	0.067
E	0.700	0.900	0.028	0.035
E1	1.450	1.750	0.057	0.069
e	0.500 TYP.		0.020 TYP.	
e1	0.900	1.100	0.035	0.043
L	0.400 REF.		0.016 REF.	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°

SOT-523 Suggested Pad Layout



Note:
1.Controlling dimension:in millimeters.
2.General tolerance:±0.05mm.
3.The pad layout is for reference purposes only.

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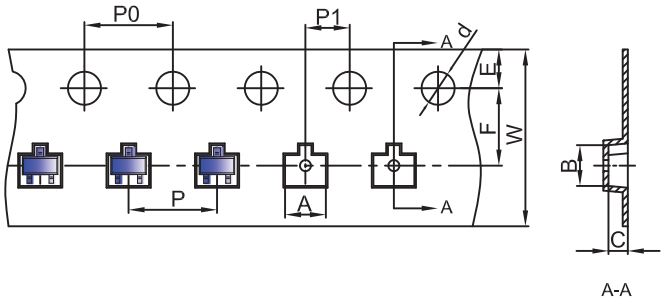
SOT-523 Tape and Reel

SOT-523 Embossed Carrier Tape

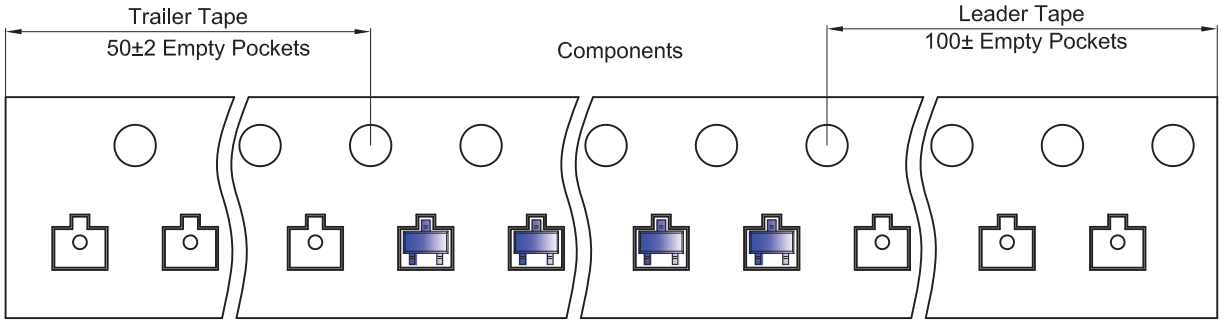


Packaging Description:

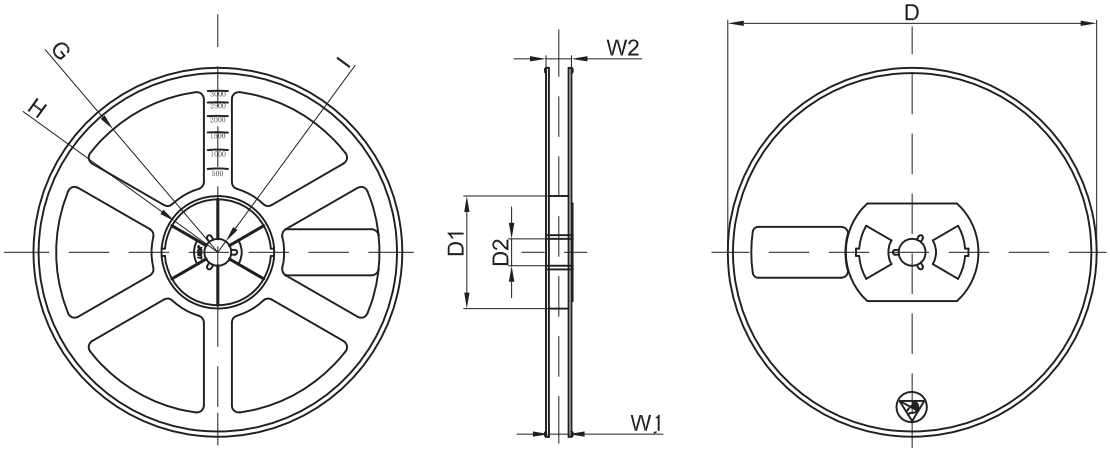
SOT-523 parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 3,000 units per 7" or 17.8cm diameter reel. The reels are clear in color and is made of polystyrene plastic (anti-static coated).

Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
SOT-523	1.85	1.85	0.875	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00

SOT-523 Tape Leader and Trailer



SOT-523 Reel



Dimensions are in millimeter								
Reel Option	D	D1	D2	G	H	I	W1	W2
7"Dia	Ø178.00	54.40	13.00	R78.00	R25.60	R6.50	9.50	12.30

REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)	G.W.(kg)
3000 pcs	7 inch	45,000 pcs	203×203×195	180,000 pcs	438×438×220	