

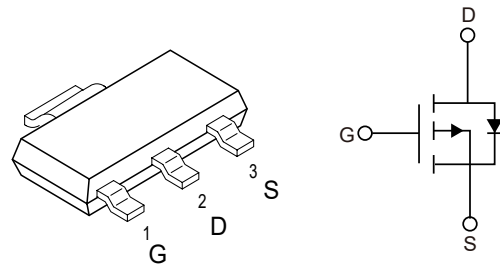
1.Features

- $V_{DS(V)} = -60V$
- $I_D = -1.17A (V_{GS} = -10V)$
- $R_{DS(ON)} < 0.5\Omega (V_{GS} = -10V)$
- $R_{DS(ON)} < 0.8\Omega (V_{GS} = -4.5V)$
- P-Channel
- Enhancement mode
- Avalanche rated
- Logic Level
- dv/dt rated
- Pb-free lead plating; RoHS compliant

2.Pinning information

Pin	Symbol	Description
1	G	GATE
2	D	DRAIN
3	S	SOURCE

SOT-223



3.Absolute Maximum Ratings $T_J = 25^\circ C$ unless otherwise noted

Parameter	Symbol	Conditions	Value	Units
Continuous drain current	I_D	$T_A = 25^\circ C$	-1.17	A
		$T_A = 70^\circ C$	-0.94	A
Pulsed drain current	$I_{D,pulse}$	$T_A = 25^\circ C$	-4.68	A
Avalanche energy, single pulse	E_{AS}	$I_D = -1.17A, V_{DD} = -25V, R_{GS} = 25\Omega$	24	mJ
Avalanche energy, periodic limited by T_{jmax}	E_{AR}		0.18	mJ
Reverse diode dv /dt	dv/dt	$I_S = -1.17A, V_{DS} = -48V,$ $di/dt = 200A/\mu s, T_{jmax} = 150^\circ C$	-6	kV/ μs
Gate source voltage	V_{GS}		± 20	V
Power dissipation	P_{tot}	$T_A = 25^\circ C$	1.8	W
Operating and storage temperature	T_J, T_{STG}		-55 to 150	$^\circ C$
IEC climatic category; DIN IEC 68-1			55/150/56	
ESD Class; JESD22-A114-HBM			Class 0	



4.Thermal resistance rating

Parameter	Symbol	min.	typ.	max.	Units
Thermal resistance, junction - soldering point (Pin 4)	R_{thJS}			25	K/W
SMD version, device on PCB: @ min. footprint @ 6 cm ² cooling area ¹⁾	R_{thJA}			115	K/W
				70	K/W



5.Specifications (T_J=25°C unless otherwise noted)

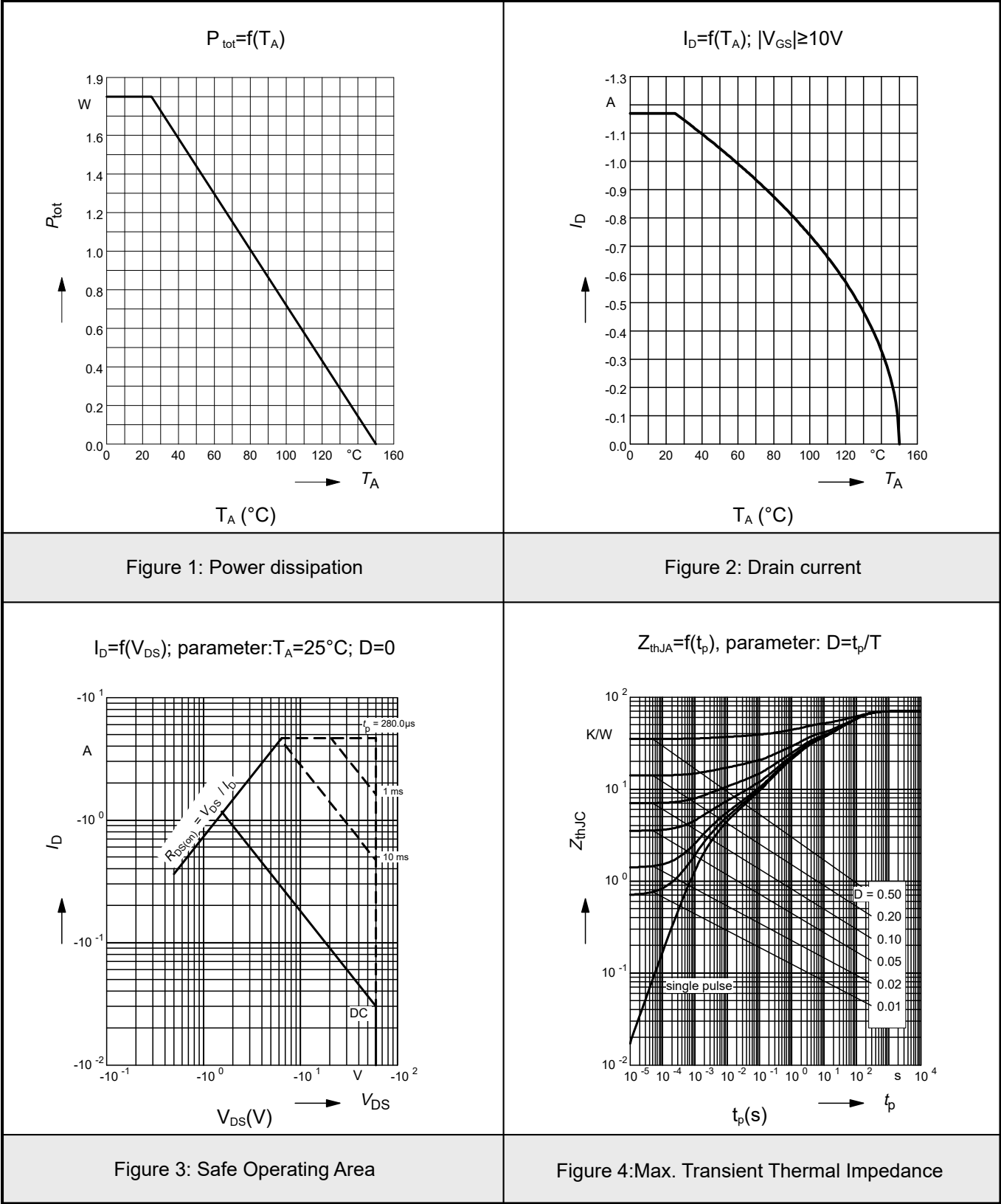
Parameter	Symbol	Conditions	Min	Typ	Max	Units
Static characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =-250μA	-60			V
Gate threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-160μA	-1	-1.5	-2	V
Zero gate voltage drain current	I _{DSS}	V _{DS} =-60V, V _{GS} =0V, T _J =25°C		-0.1	-1	μA
		V _{DS} =-60V, V _{GS} =0V, T _J =125°C		-10	-100	μA
Gate-source leakage current	I _{GSS}	V _{GS} =-20V, V _{DS} =0V		-10	-100	nA
Drain-source on-state resistance	R _{DS(ON)}	V _{GS} =-4.5V, I _D =-0.89A		0.8	1.4	Ω
		V _{GS} =-10V, I _D =-1.17A		0.5	0.8	Ω
Dynamic characteristics						
Transconductance	g _{FS}	V _{DS} ≤2*I _D *R _{DS(ON)max} , I _D =-0.89A	0.7	1.4		S
Input Capacitance	C _{iss}	V _{GS} =0V, V _{DS} =-25V, f =1MHz		130	160	pF
Output Capacitanc	C _{oss}			40	50	pF
Reverse Transfer Capacitance	C _{rss}			17	21	pF
Turn-On DelayTime	t _{D(on)}	V _{DD} =-30V, V _{GS} =-4.5V I _D =-0.89A, R _G =18Ω		24	36	ns
Rise Time	t _r			9	14	ns
Turn-Off DelayTime	t _{D(off)}			32	48	ns
Fall Time	t _f			19	28	ns
Gate Charge Characteristics						
Gate to source charge	Q _{gs}	V _{DD} =-48V, I _D =-1.17A V _{GS} =0 to -10V		0.7	1.1	nC
Gate to drain charge	Q _{gd}			1.8	2.6	nC
Gate charge total	Q _g			5.2	7.8	nC
Gate plateau voltage	V _{plateau}			-3.14		V



Reverse Diode						
Inverse diode continuous forward current	I_S	$T_A=25^{\circ}\text{C}$			-1.17	A
Inverse diode direct current,pulsed	$I_{S,pulse}$				-4.68	A
Inverse diode forward voltage	V_{SD}	$V_{GS}=0\text{ V}, I_F=-1.17\text{A}$		-0.97	-1.3	V
Reverse recovery time	t_{rr}	$V_R=-30\text{V}, I_F=I_S,$ $di_F/dt =100\text{A}/\mu\text{s}$		30.5	46	ns
Reverse recovery charge	Q_{rr}			36	54	μC

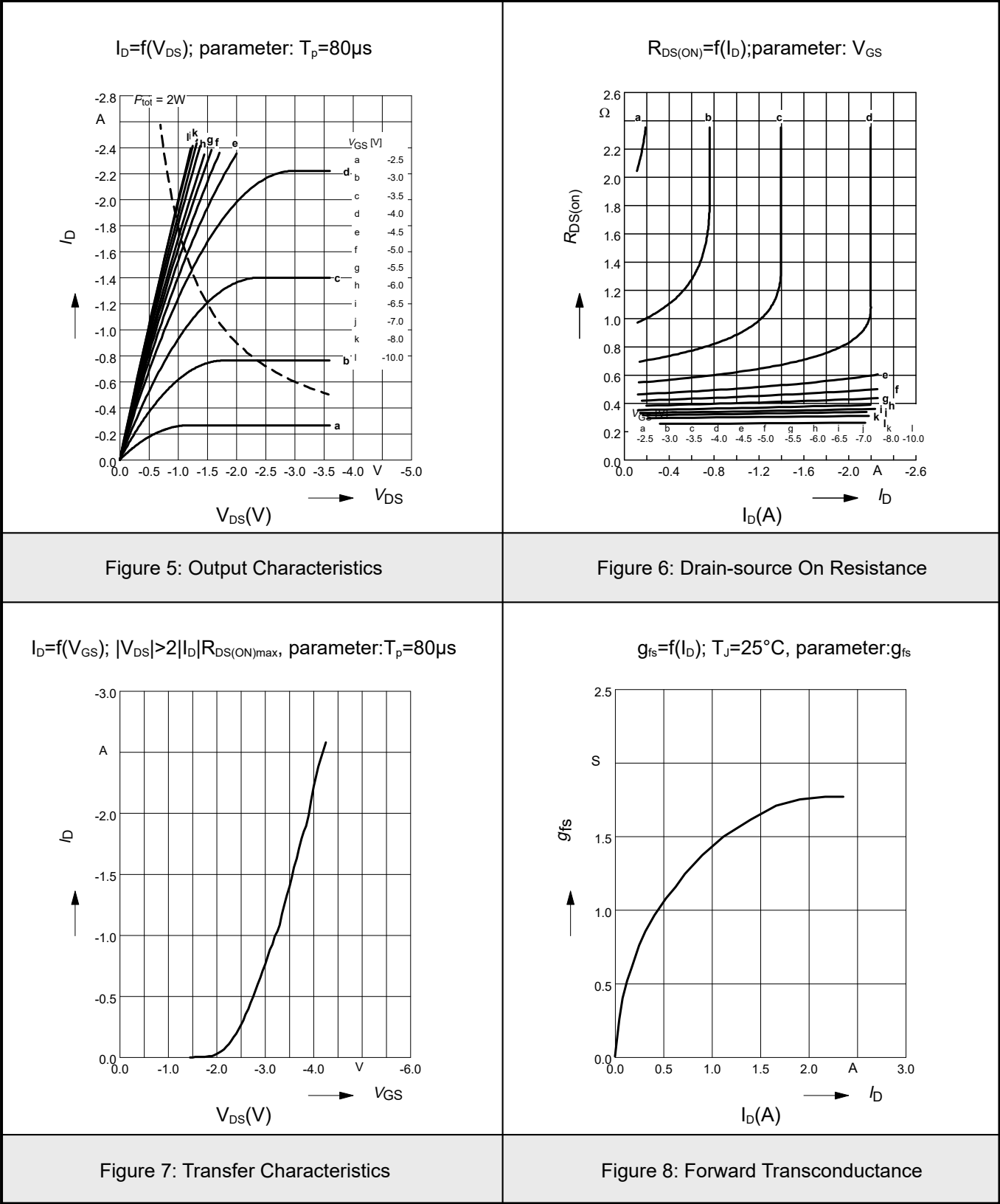


6.1Typical characteristic





6.2Typical characteristic





6.3Typical characteristic

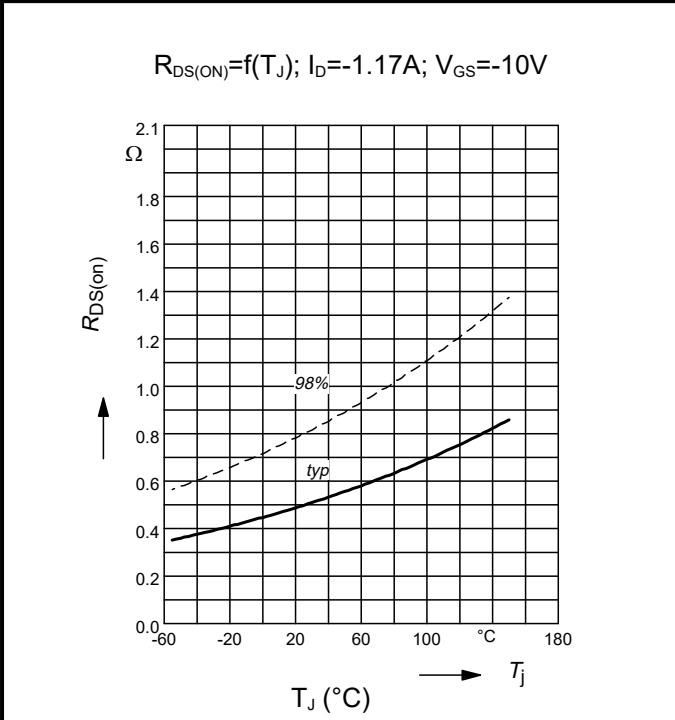


Figure 9: Drain-source On-state Resistance

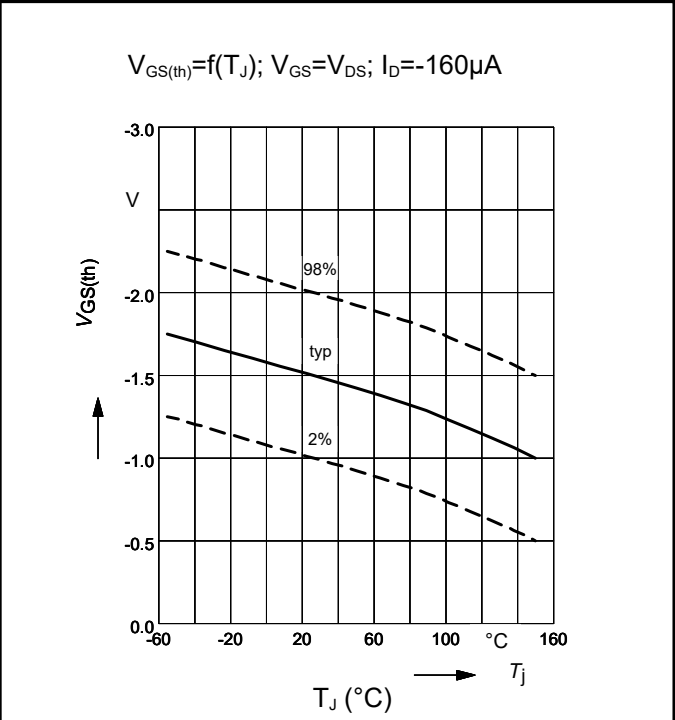


Figure 10: Gate Threshold Voltage

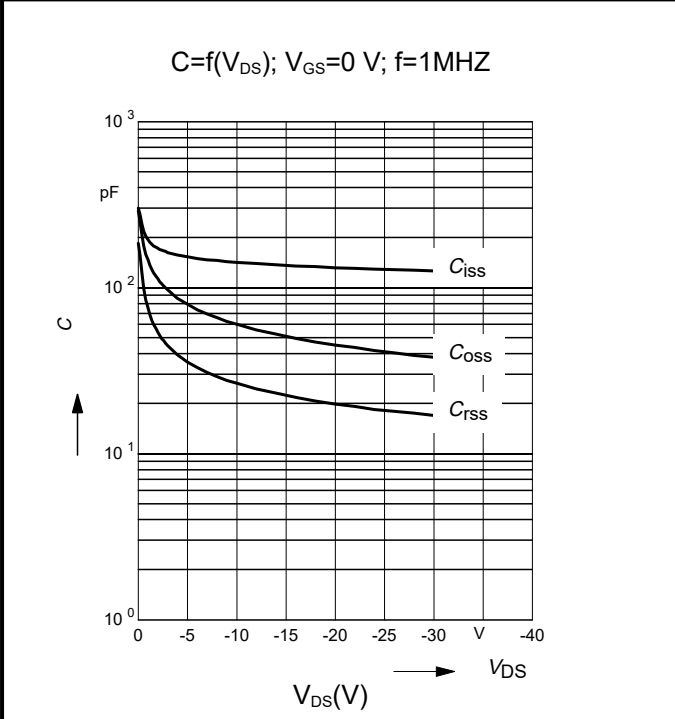


Figure 11: Capacitances

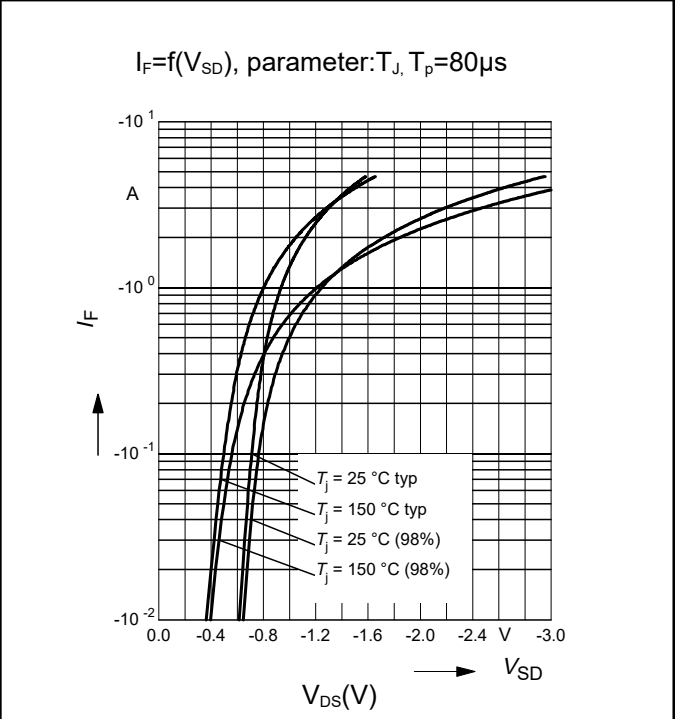
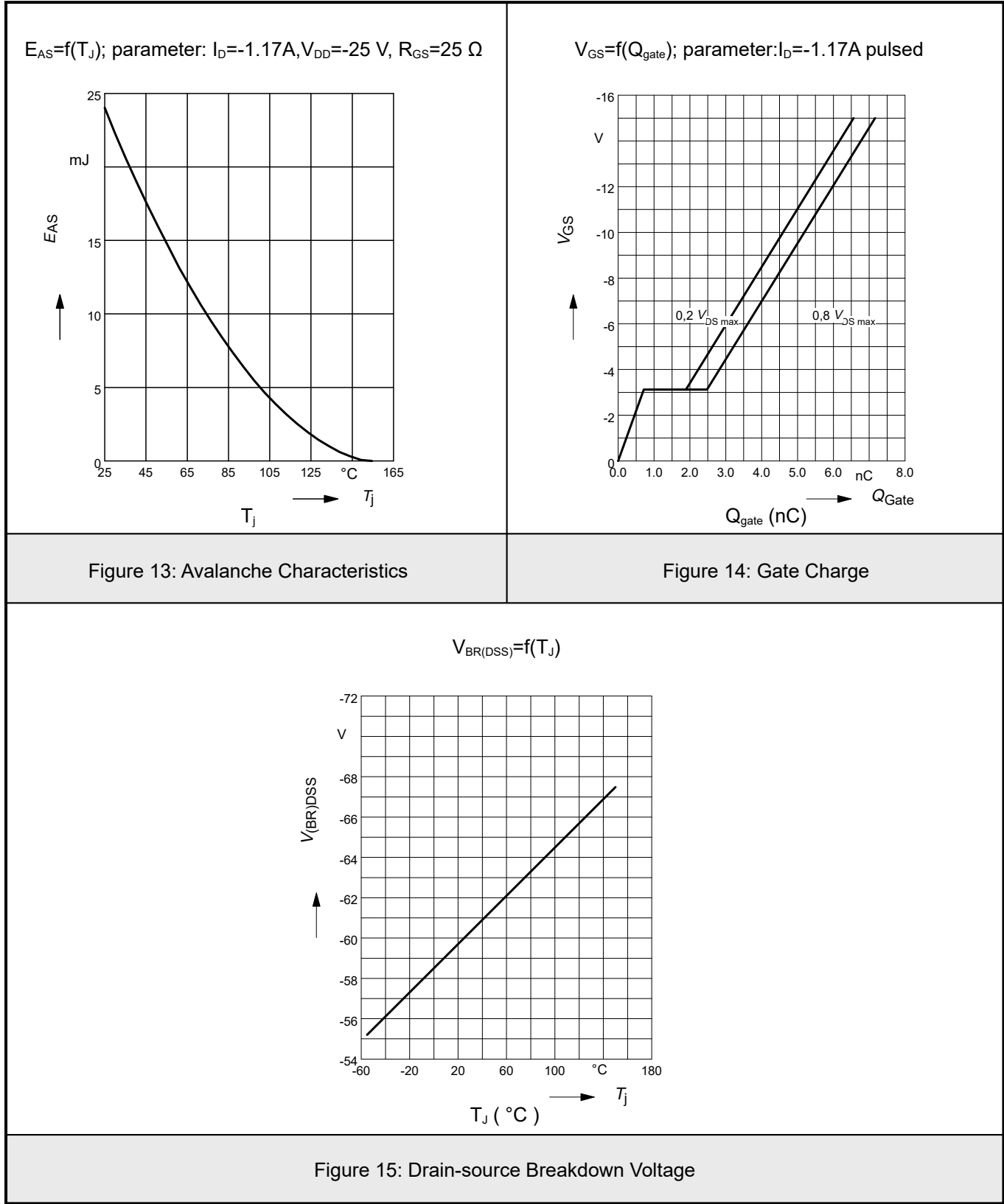


Figure 12: Forward Characteristics Of Reverse Diode

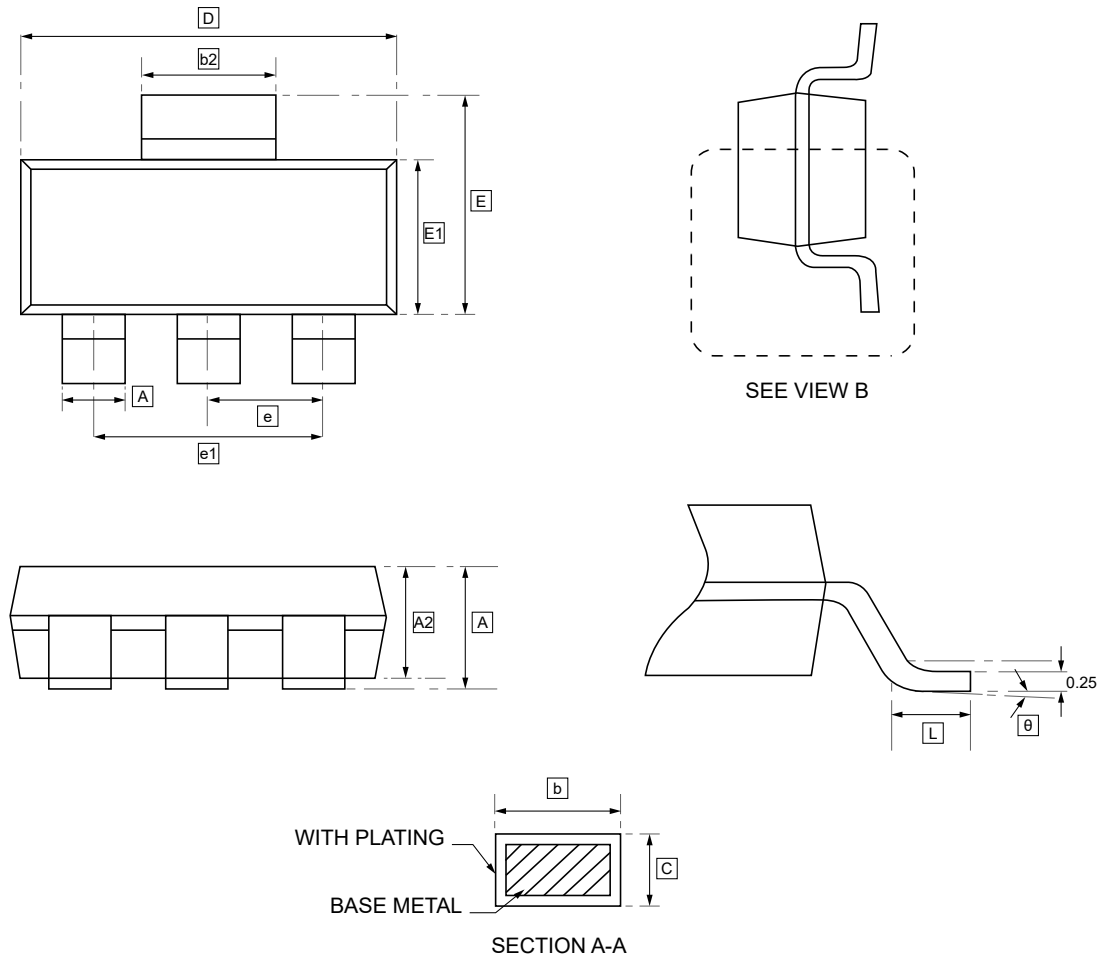


6.4Typical characteristic





7.SOT-223 Package Outline Dimensions



DIMENSIONS (mm are the original dimensions)

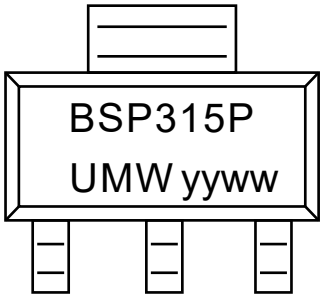
Symbol	A	A1	A2	b	b2	c	D	E	E1	e	e1	L	θ
Min		0.02	1.55	0.66	2.90	0.23	6.30	6.70	3.30	2.30	4.60	0.90	0°
Max	1.80	0.10	1.65	0.84	3.10	0.33	6.70	7.30	3.70	BSC	BSC		8°

Note.

- 1.Refer to JEDEC TO-261AA.
- 2.Dimension D and E1 are determined at the outermost extremes of the plastic body exclusive of mold flash, tie bar burrs, gateburrs, and interlead flash, but including any mismatch between the top and bottom of the plastic body.
- 3.Controlling dimension is millimeter, converted inch dimensions are not necessarily exact.



8.Ordering information



yy: Year Code
ww: Week Code

Order Code	Package	Base QTY	Delivery Mode
UMW BSP315P	SOT-223	2500	Tape and reel



9.Disclaimer

UMW reserves the right to make changes to all products, specifications. Customers should obtain the latest version of product documentation and verify the completeness and currency of the information before placing an order.

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