

1.Description

The BSS308PE uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 2.5V. This device is suitable for use as a load switch applications.

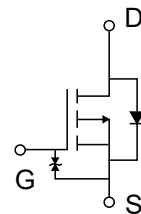
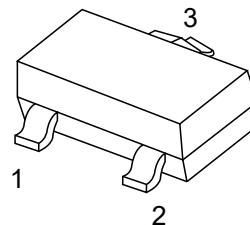
2.Features

- $V_{DS(V)} = -30V$
- $R_{DS(ON)} < 70m\Omega (V_{GS} = 10V)$
- $R_{DS(ON)} < 90m\Omega (V_{GS} = 4.5V)$

3.Pinning information

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

SOT-23



4.Maximum ratings ($T_A = 25^\circ C$ unless otherwise noted)

Parameter	Symbol	Conditions	Value	Units
Drain-Source Voltage	I_D	$T_A = 25^\circ C$	-2	A
		$T_A = 70^\circ C$	-1.6	
Pulsed drain current	$I_{D, pulse}$	$T_A = 25^\circ C$	-8	
Avalanche energy, single pulse	E_{AS}	$I_D = -2 A, R_{GS} = 25 \Omega$	-10.7	mJ
Reverse diode dv/dt	dv /dt	$I_D = -2 A, V_{DS} = -16V$ $di/dt = -200A/\mu s, T_{j, max} = 150^\circ C$	6	kV/ μs
Gate source voltage	V_{GS}		± 20	V
Power dissipation ¹⁾	P_{tot}	$T_A = 25^\circ C$	0.5	W
Operating and storage temperature	T_J, T_{STG}		-55 to 150	$^\circ C$
ESD Class		JESD22-A114 -HBM	2 (2kV to 4kV)	
Soldering Temperature			260 $^\circ C$	$^\circ C$
IEC climatic category; DIN IEC 68-1			55/150/56	$^\circ C$



Parameter	Symbol	Conditions	Min	Typ	Max	Units
Thermal characteristics						
Thermal resistance, junction - ambient	R_{thJA}	minimal footprint ¹⁾		250	250	K/W
Electrical characteristics, at $T_j=25\text{ }^{\circ}\text{C}$, unless otherwise specified						
Static characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-30			V
Gate threshold voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-11\mu A$	-1	-1.5	-2	
Drain-source leakage current	I_{DSS}	$V_{DS}=-30V, V_{GS}=0V, T_j=25^{\circ}\text{C}$			-1	μA
		$V_{DS}=-30V, V_{GS}=0V, T_j=125^{\circ}\text{C}$			-100	
Gate-source leakage current	I_{GSS}	$V_{GS}=-20V, V_{DS}=0V$			-5	μA
Drain-source on-state resistance	$R_{DS(on)}$	$V_{GS}=-4.5V, I_D=-1.7A$		70	90	m Ω
		$V_{GS}=-10V, I_D=-2A$		62	70	
Transconductance	g_{FS}	$ V_{DS} >2 I_D R_{DS(on)max}, I_D=-1.6A$		4.6		S

1) Performed on 40mm^2

FR4 PCB. The traces are 1mm wide, $70\mu\text{m}$ thick and 20mm long; they are present on both sides of the PCB.

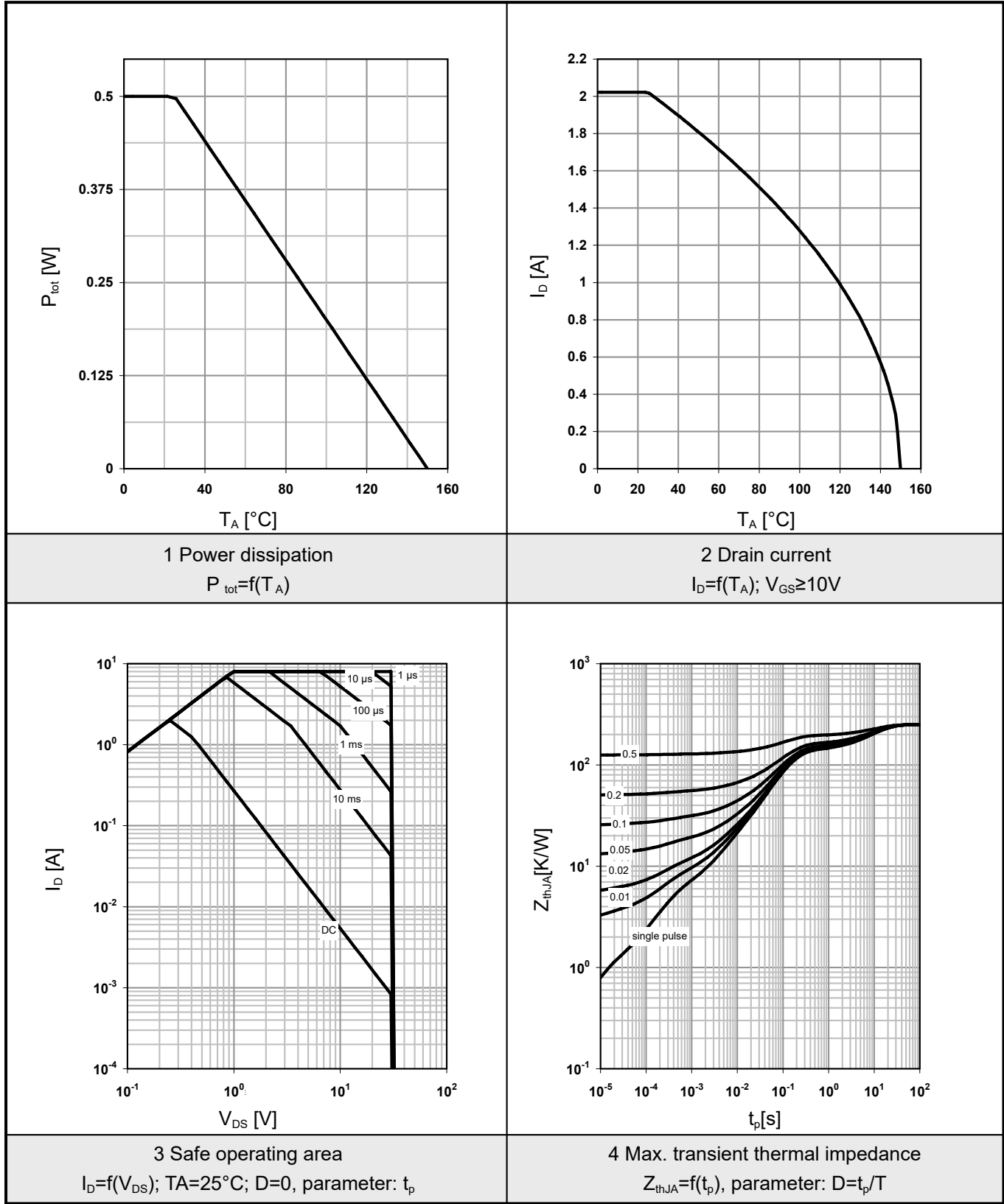


5. Electrical Characteristics $T_A=25^\circ\text{C}$

Parameter	Symbol	Conditions	Min	Typ	Max	Units	
Dynamic characteristics							
Input capacitance	BV _{DSS}	C _{iss}	V _{DS} =0V, V _{GS} =-15V, f=1MHz		376	500	pF
Output capacitance		C _{oss}			196	261	
Reverse transfer capacitance		C _{rss}			12	18	
Turn-on delay time	I _{GSS}	t _{D(on)}	V _{DD} =-15V, V _{GS} =-10V R _G =6Ω, I _D =-2A		5.6		ns
Rise time	V _{GS(th)}	t _r			7.7		
Turn-off delay time	I _{D(ON)}	t _{D(off)}			15.3		
Fall time		t _f			2.8		
Gate Charge Characteristics							
Gate to source charge	g _{FS}	Q _{gs}	V _{DD} =-15V, I _D =-2A V _{GS} =0 to -10V		-1.2		nC
Gate to drain charge	V _{SD}	Q _{gd}			-0.6		
Gate charge total	I _s	Q _g			-5		
Gate plateau voltage		V _{plateau}			-3.1		V
Reverse Diode							
Diode continous forward current	C _{oss}	I _S	T _A =85°C			-0.4	V
Diode pulse current	C _{rss}	I _{S,pulse}				-8.4	
Diode forward voltage	R _g	V _{SD}	V _{GS} =0V, I _F =-2V, T _J =25°C		0.8	-1.1	V
Reverse recovery time		t _{rr}	V _R =10V, I _F =-2A		14		nS
Reverse recovery charge		Q _{rr}	di _F /dt =100A/μs		-5.9		nC

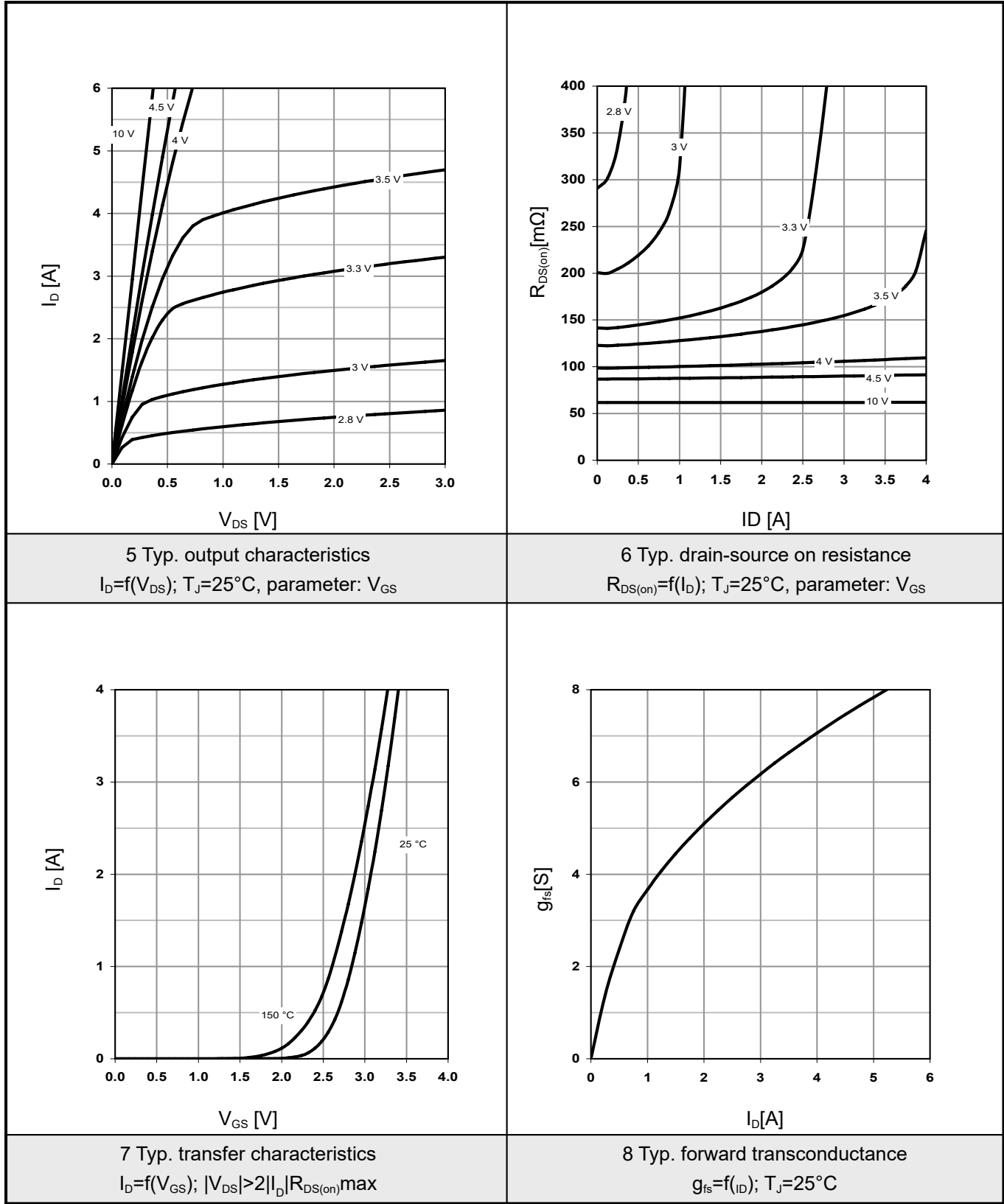


6.1Typical Characterisitics



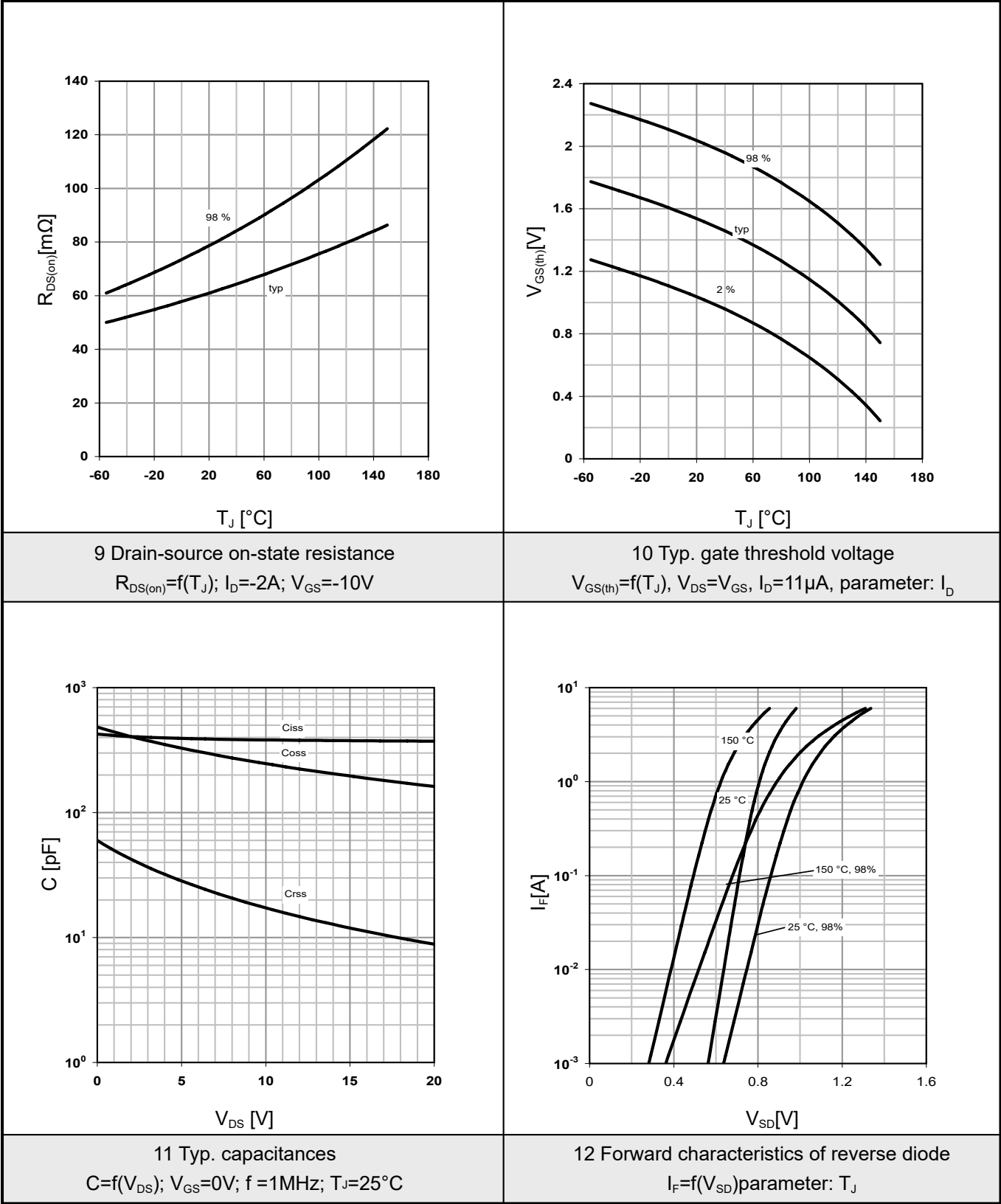


6.2Typical Characteristics



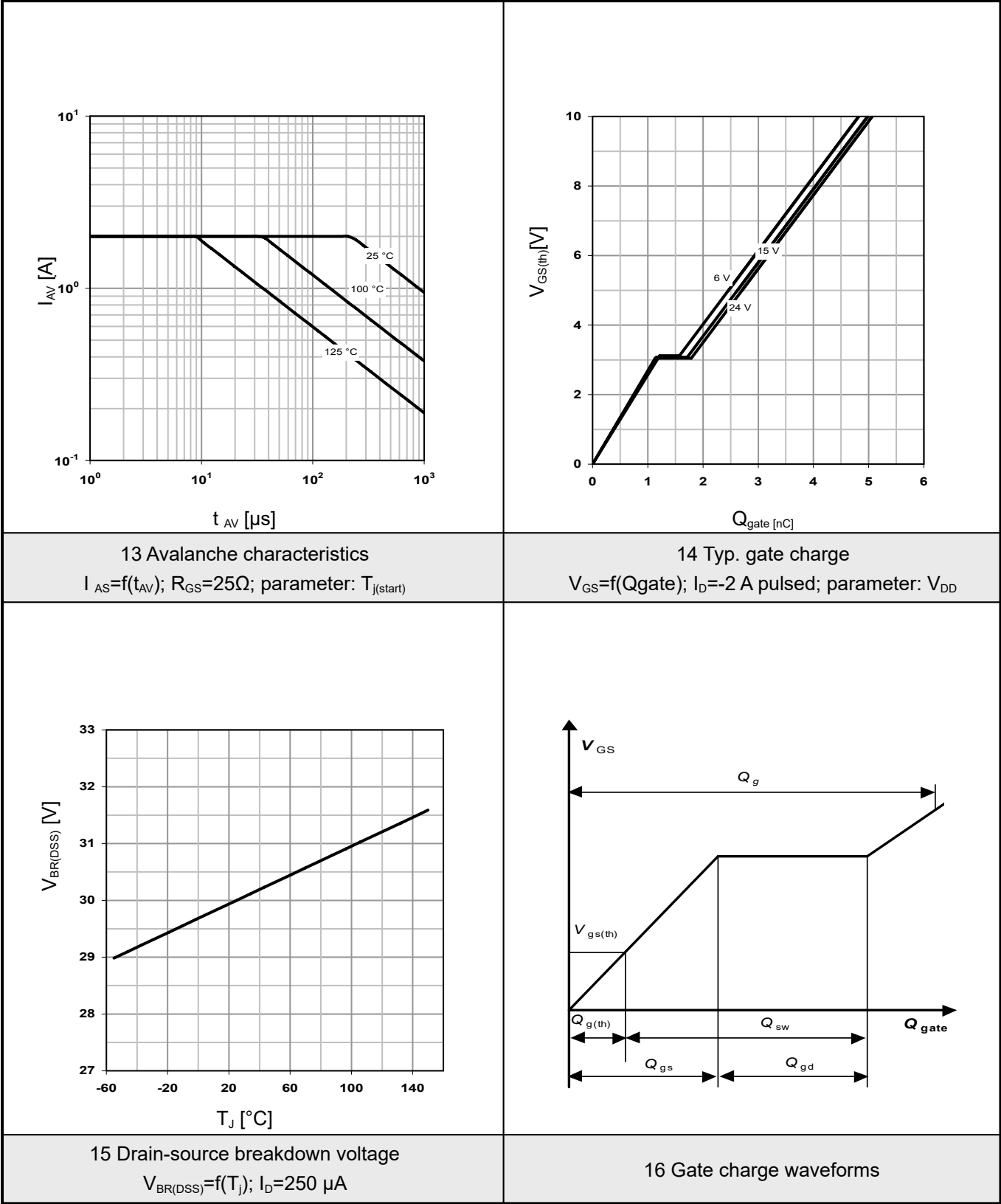


6.3Typical Characteristics



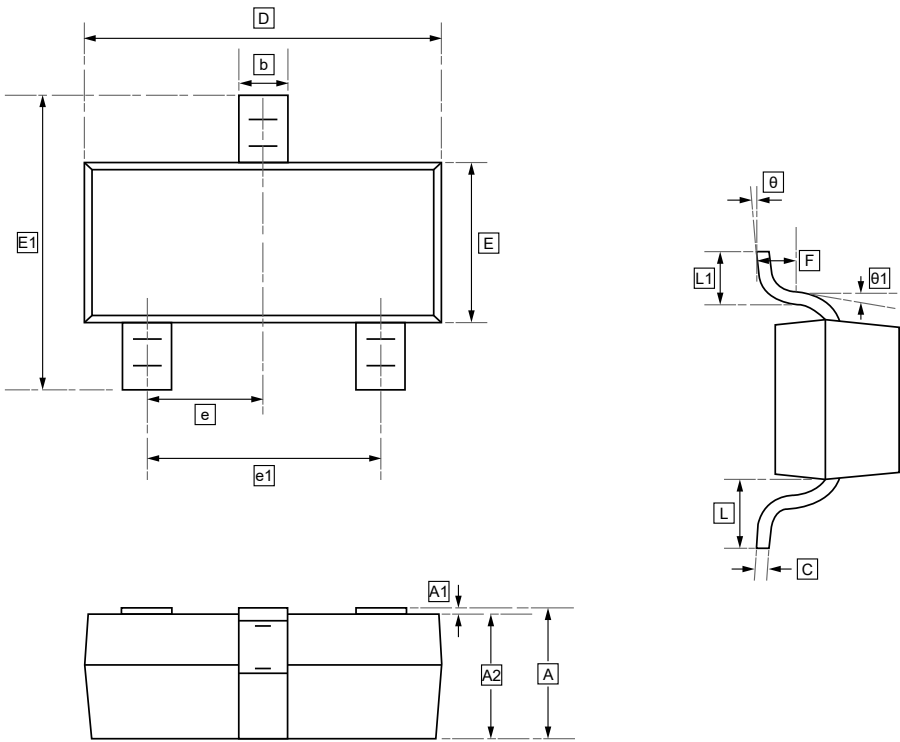


6.4Typical Characteristics





7.SOT-23 Package Outline Dimensions



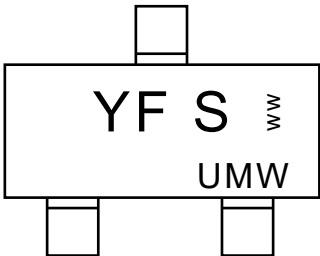
DIMENSIONS (mm are the original dimensions)

Symbol	A	A1	A2	b	C	D	E	E1	e	e1	L	L1
Min	0.90	0.00	0.90	0.30	0.08	2.80	1.20	2.25	0.95	1.80	0.55	0.30
Max	1.15	0.10	1.05	0.50	0.15	3.00	1.40	2.55	TYP.	2.00	REF	0.50

Symbol	F	θ	θ1
Min	0.25	0°	2°
Max		8°	12°



8.Ordering information



ww: Batch Code

Order Code	Package	Base QTY	Delivery Mode
UMW BSS308PE	SOT-23	3000	Tape and reel



9.Disclaimer

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