

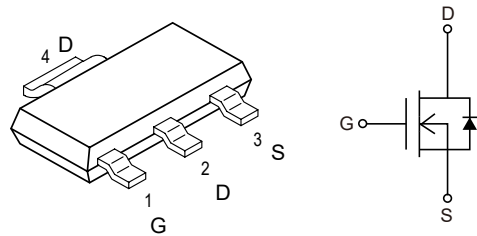
1.Features

- $V_{DS(V)}=60V$
- $I_D=2.6A(V_{GS}=10V)$
- $R_{DS(ON)} < 0.12\Omega(V_{GS}=10V)$
- $R_{DS(ON)} < 0.07\Omega(V_{GS}=4.5V)$
- N-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
2,4	D	DRAIN
3	S	SOURCE

SOT-223
top view



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

Parameter	Symbol	Conditions	Value	Units
Continuous drain current	I_D		2.6	A
Pulsed drain current	$I_{D,pulse}$	$T_A=25^\circ C$	10.4	A
Avalanche energy, single pulse	E_{AS}	$I_D=2.6A, V_{DD}=25V, R_{GS}=25\Omega$	60	mJ
Avalanche energy, periodic limited by T_{jmax}	I_{AR}		2.6	A
Avalanche energy, periodic limited by T_{jmax}	E_{AR}		0.18	mJ
Reverse diode dv /dt	dv/dt	$I_S=2.6A, V_{DS}=20V,$ $di/dt=200A/\mu s, T_{jmax}=150^\circ C$	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 1b	



4.Thermal resistance rating

Parameter	Symbol	min.	typ.	max.	Units
Thermal resistance, junction - soldering point (Pin 4)	R_{thJS}		17		K/W
SMD version, device on PCB: @ min. footprint @ 6 cm ² cooling area ¹⁾	R_{thJA}		100		K/W
				70	K/W



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

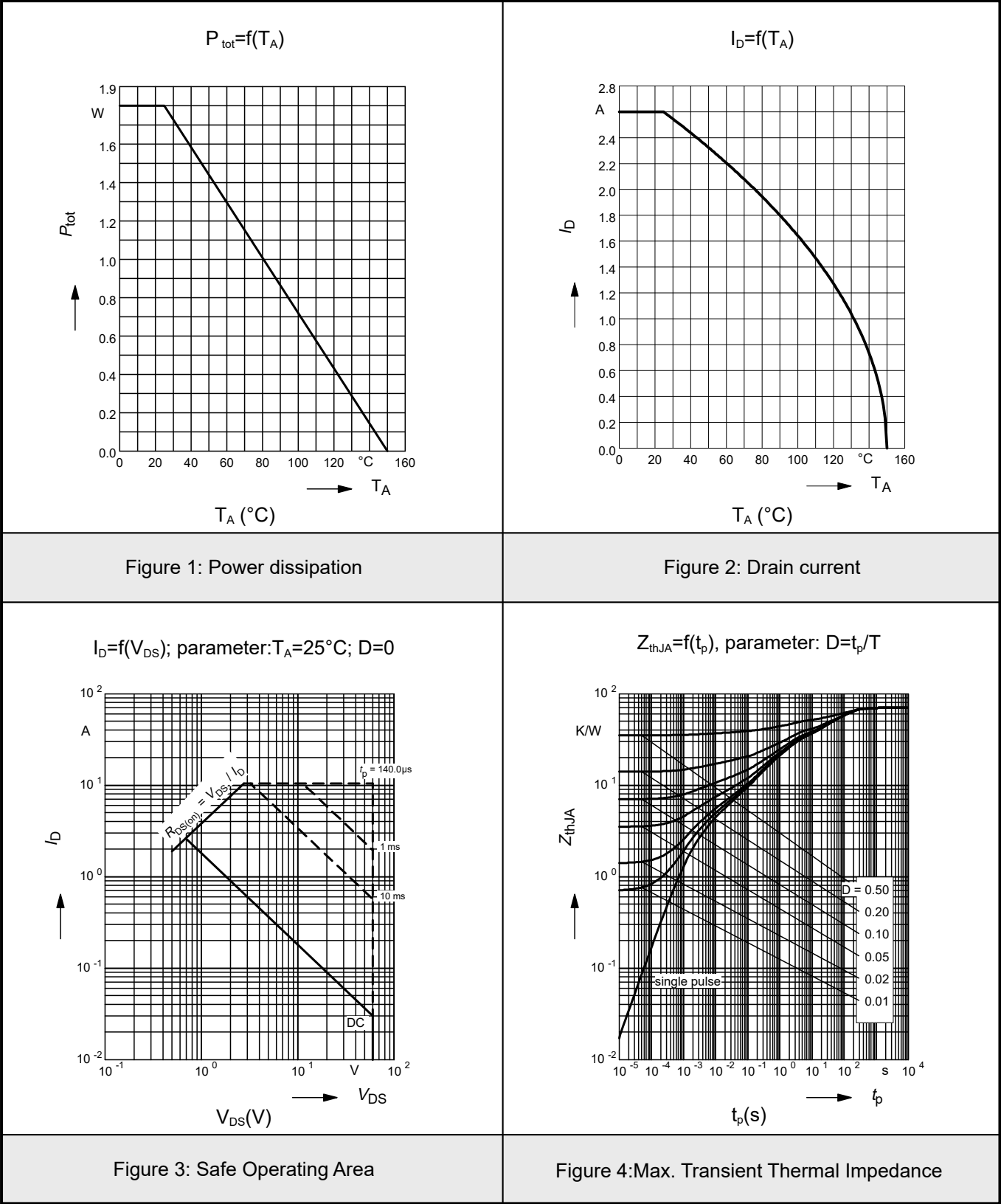
Parameter	Symbol	Conditions	Min	Typ	Max	Units
Static characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =0.25mA	60			V
Gate threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =20μA	1.2	1.6	2	V
Zero gate voltage drain current	I _{DSS}	V _{DS} =60V, V _{GS} =0V, T _J =25°C		0.1	1	μA
		V _{DS} =60V, V _{GS} =0V, T _J =150°C			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 =2.6A		0.12	0.15	Ω
		V _{GS} =10V, I _D =2.6A		0.07	0.09	Ω
Dynamic characteristics						
Transconductance	g _{FS}	V _{DS} ≥2*I _D *R _{DS(ON)max} , I _D =2.6A	2.4	5.5		S
Input Capacitance	C _{iss}	V _{GS} =0V, V _{DS} =25V, f =1MHz		300	380	pF
Output Capacitanc	C _{oss}			90	120	pF
Reverse Transfer Capacitance	C _{rss}			50	65	pF
Turn-On DelayTime	t _{D(on)}	V _{DD} =30V, V _{GS} =4.5V I _D =2.6A, R _G =16Ω		12	20	ns
Rise Time	t _r			15	25	ns
Turn-Off DelayTime	t _{D(off)}			20	30	ns
Fall Time	t _f			15	25	ns
Gate Charge Characteristics						
Gate charge at threshold	Q _{g(th)}	V _{DD} =40V,I _D =0.1A,V=1V		0.4	0.6	nC
Gate charge at	Q _{g(5)}	V _{DD} =40V,I _D =2.6A,V _{GS} =0 to 5V		7	10	nC
Gate charge total	Q _g	V _{DD} =40V,I _D =2.6A,V _{GS} =0 to 10V		14	20	nC
Gate plateau voltage	V _{plateau}	V _{DD} =40V,I _D =2.6A		3.6		V



Reverse Diode						
Inverse diode continuous forward current	I_S	$T_A=25^{\circ}\text{C}$			2.6	A
Inverse diode direct current,pulsed	I_{SM}				10.4	A
Inverse diode forward voltage	V_{SD}	$V_{GS}=0\text{ V}, I_F=5.2\text{A}$		0.95	1.2	V
Reverse recovery time	t_{rr}	$V_R=30\text{V}, I_F=I_S,$ $di_F/dt = 100\text{A}/\mu\text{s}$		50	75	ns
Reverse recovery charge	Q_{rr}			0.1	0.15	μC



6.1Typical characteristic





6.2Typical characteristic

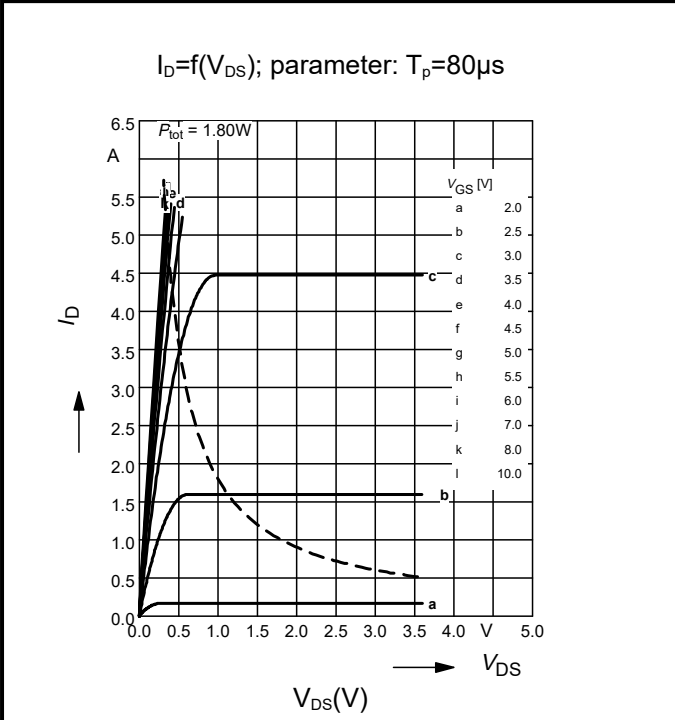


Figure 5: Output Characteristics

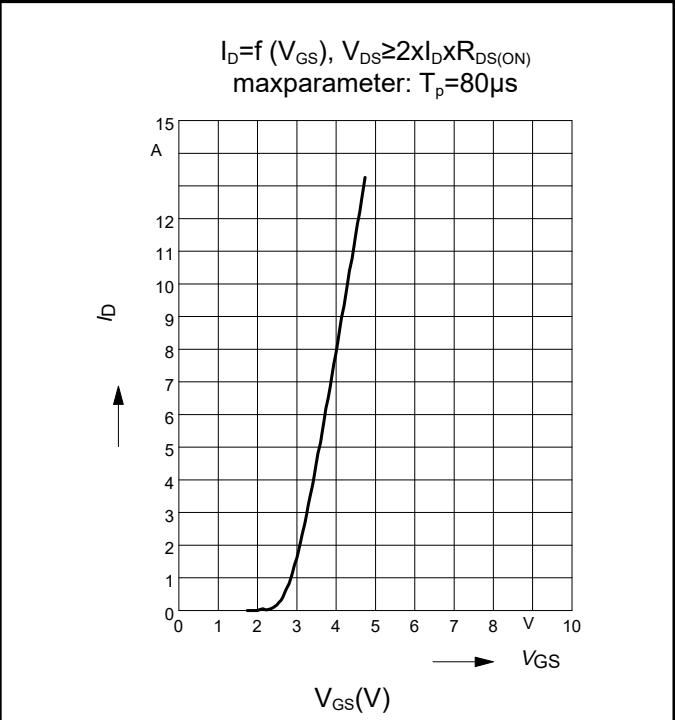


Figure 6: Drain-source On Resistance

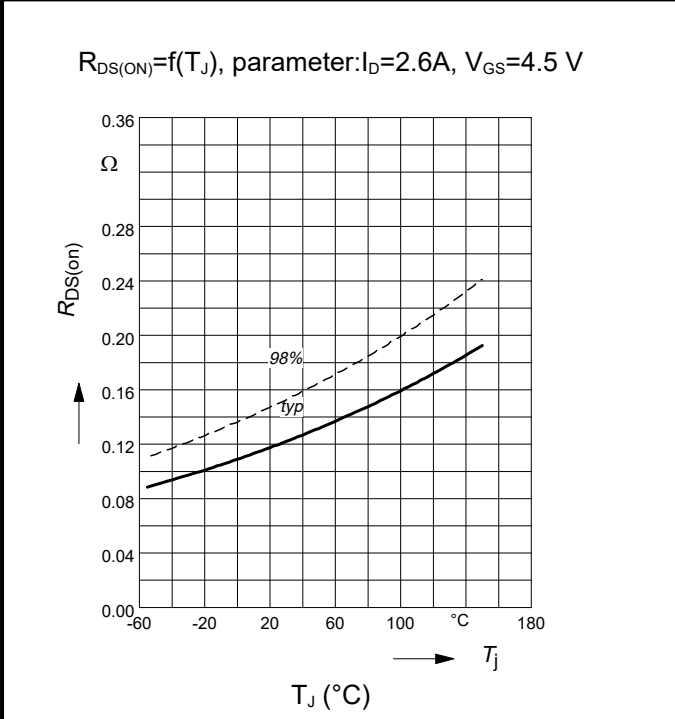


Figure 7: Transfer Characteristics

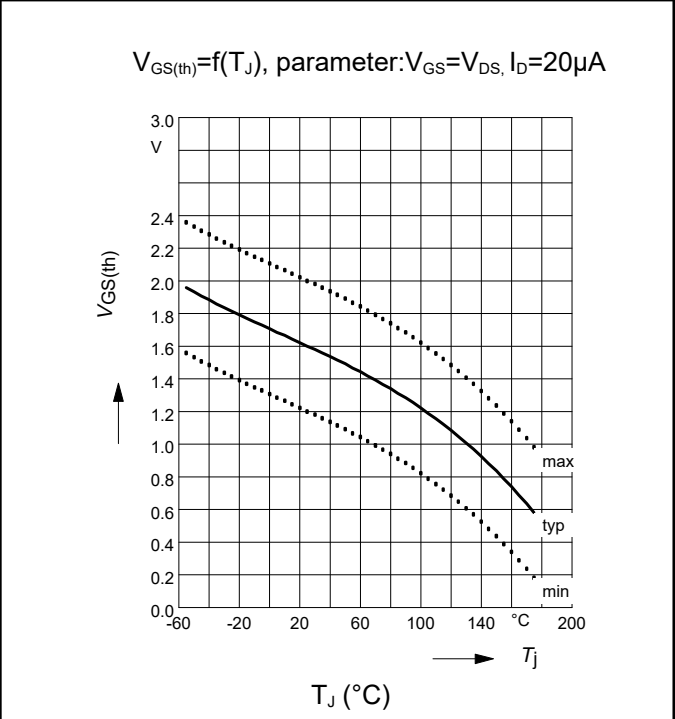


Figure 8: Forward Transconductance



6.3 Typical characteristic

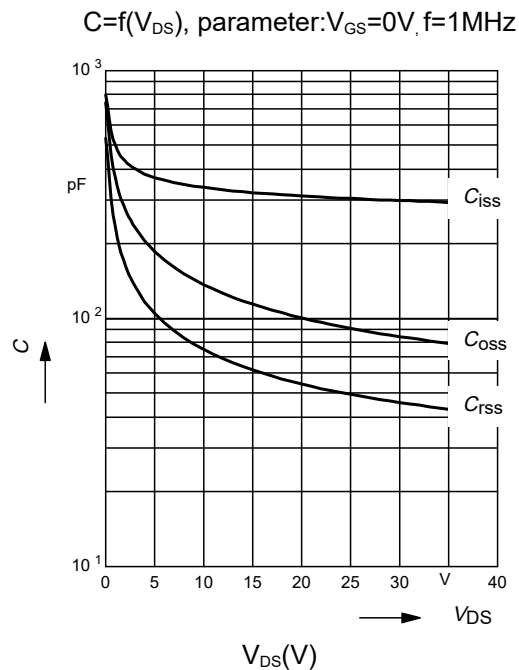


Figure 9: Drain-source On-state Resistance

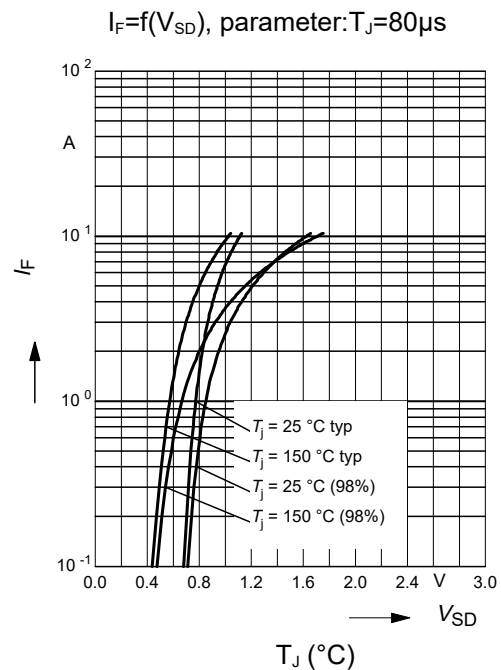


Figure 10: Gate Threshold Voltage

$E_{AS}=f(T_J)$; parameter: $I_D=2.6A$, $V_{DD}=25V$, $R_{GS}=25\Omega$

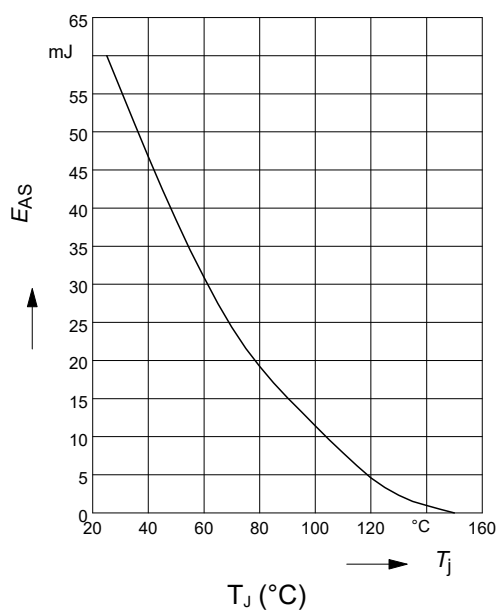


Figure 11: Capacitances

$V_{GS}=f(Q_{gate})$; parameter: $I_D=2.6A$ pulsed

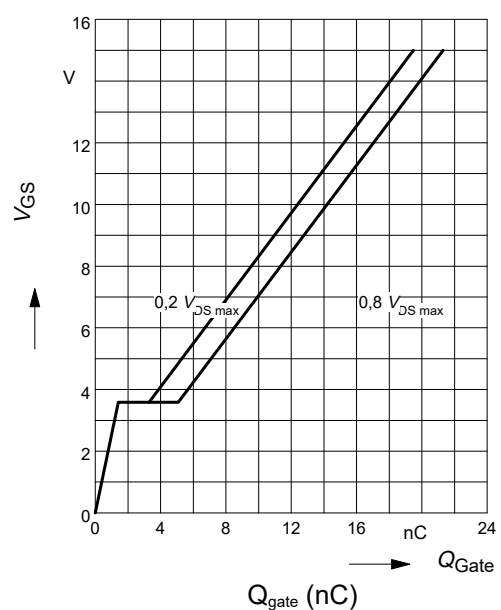
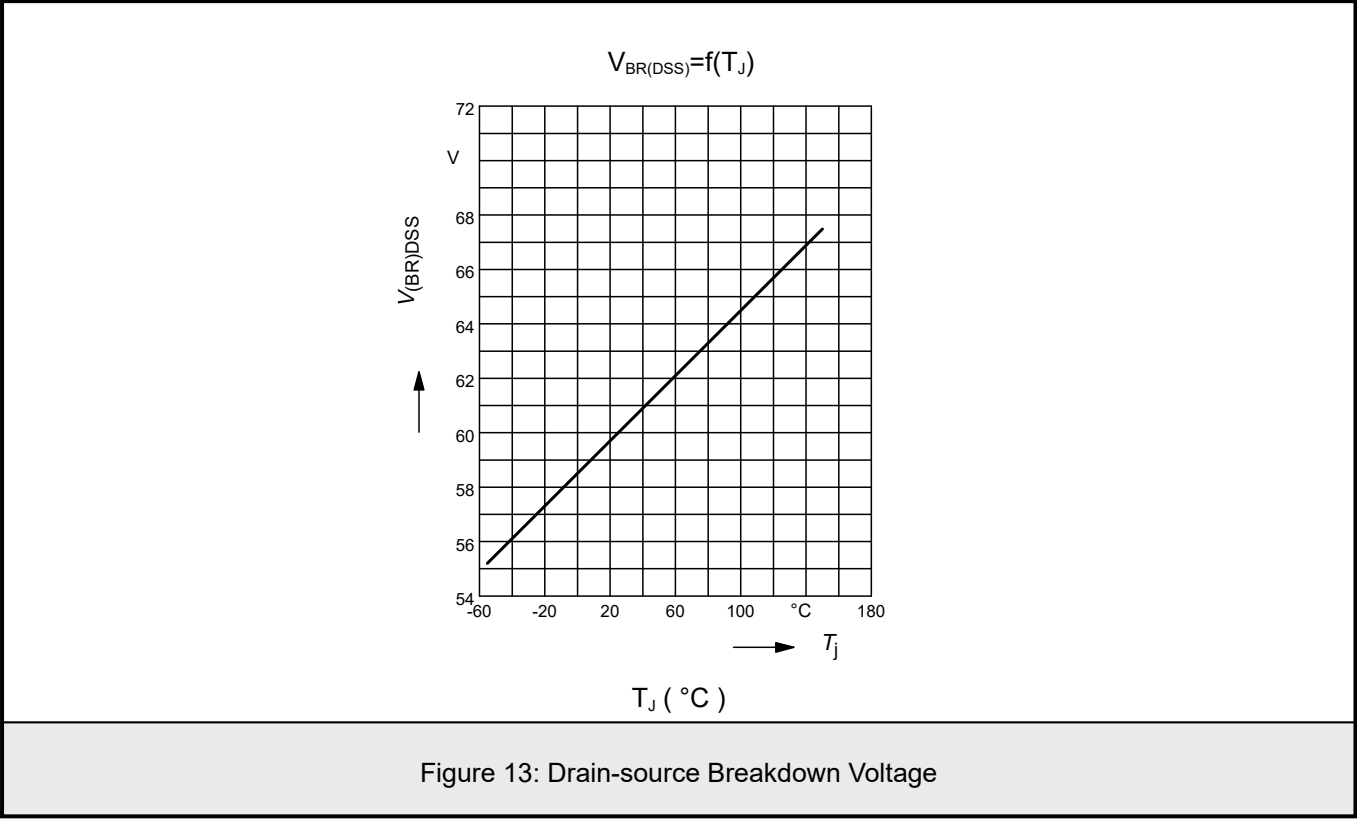


Figure 12: Forward Characteristics Of Reverse Diode

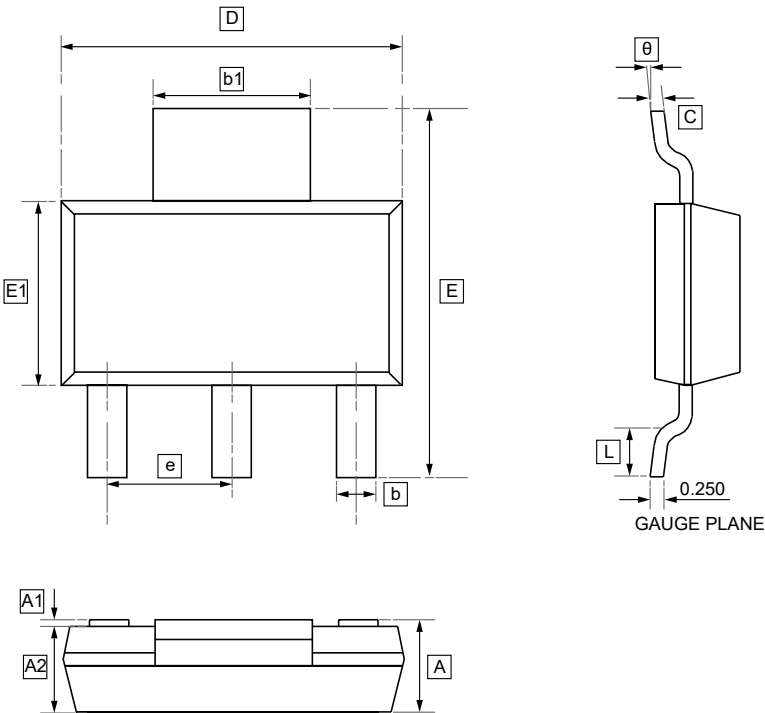


6.4Typical characteristic





7.SOT-223 Package Outlie Dimensions

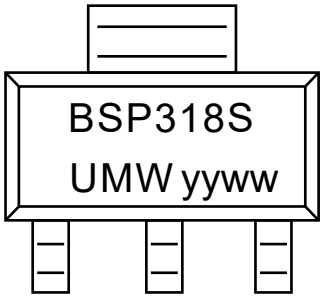


DIMENSIONS (mm are the original dimensions)

Symbol	A	A1	A2	b	b1	c	D	E	E1	e	L	θ
Min	-	0.020	1.500	0.660	2.900	0.230	6.300	6.700	3.300	2.300	0.750	0°
Max	1.800	0.100	1.700	0.840	3.100	0.350	6.700	7.300	3.700	BSC	-	10°



8.Ordering information



yy: Year Code
ww: Week Code

Order Code	Package	Base QTY	Delivery Mode
UMW BSP318S	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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