

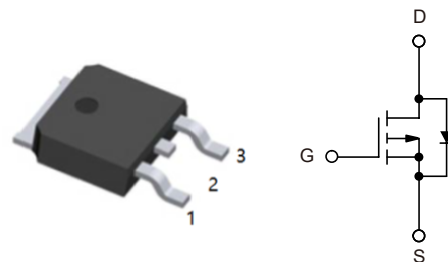
1.Features

- $V_{DS(V)} = -60V$
- $I_D = -30A$
- $R_{DS(ON)} = 75m\Omega (V_{GS} = -10V)$
- P-Channel
- Enhancement mode
- Avalanche rated
- dv/dt rated
- 175°C operating temperature

2.Pinning information

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

TO-252(DPAK)
top view



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

Parameter	Symbol	Conditions	Value	Units
Continuous drain current	I_D	$T_C = 25^\circ C$ ¹⁾	-30	A
		$T_C = 100^\circ C$	-21.5	A
Pulsed drain current	$I_{D,puls}$	$T_C = 25^\circ C$	-120	A
Avalanche energy, single pulse	E_{AS}	$I_D = -30A, V_{DD} = -25V, R_{GS} = 25\Omega$	250	mJ
Avalanche energy, periodic limited by T_{jmax}	E_{AR}		12.5	mJ
Reverse diode dv/dt	dv/dt	$I_S = -30 A, V_{DS} = -48V,$ $di/dt = 200 A/\mu s, T_{jmax} = 175^\circ C$	6	kV/ μs
Gate source voltage	V_{GS}		± 20	V
Power dissipation	P_{tot}	$T_C = 25^\circ C$	125	W
storage temperature	T_J, T_{STG}		-55 to 175	$^\circ C$
IEC climatic category; DIN IEC 68-1			55/175/56	



4. Thermal resistance rating

Parameter	Symbol	Max	Units
Thermal resistance, junction -case	R_{thJC}	1.2	K/W
Thermal resistance, junction - ambient, leade	R_{thJA}	100	K/W
SMD version, device on PCB:@ min.	R_{thJA}	75	K/W
footprint @ 6 cm ² cooling area ¹⁾		50	K/W

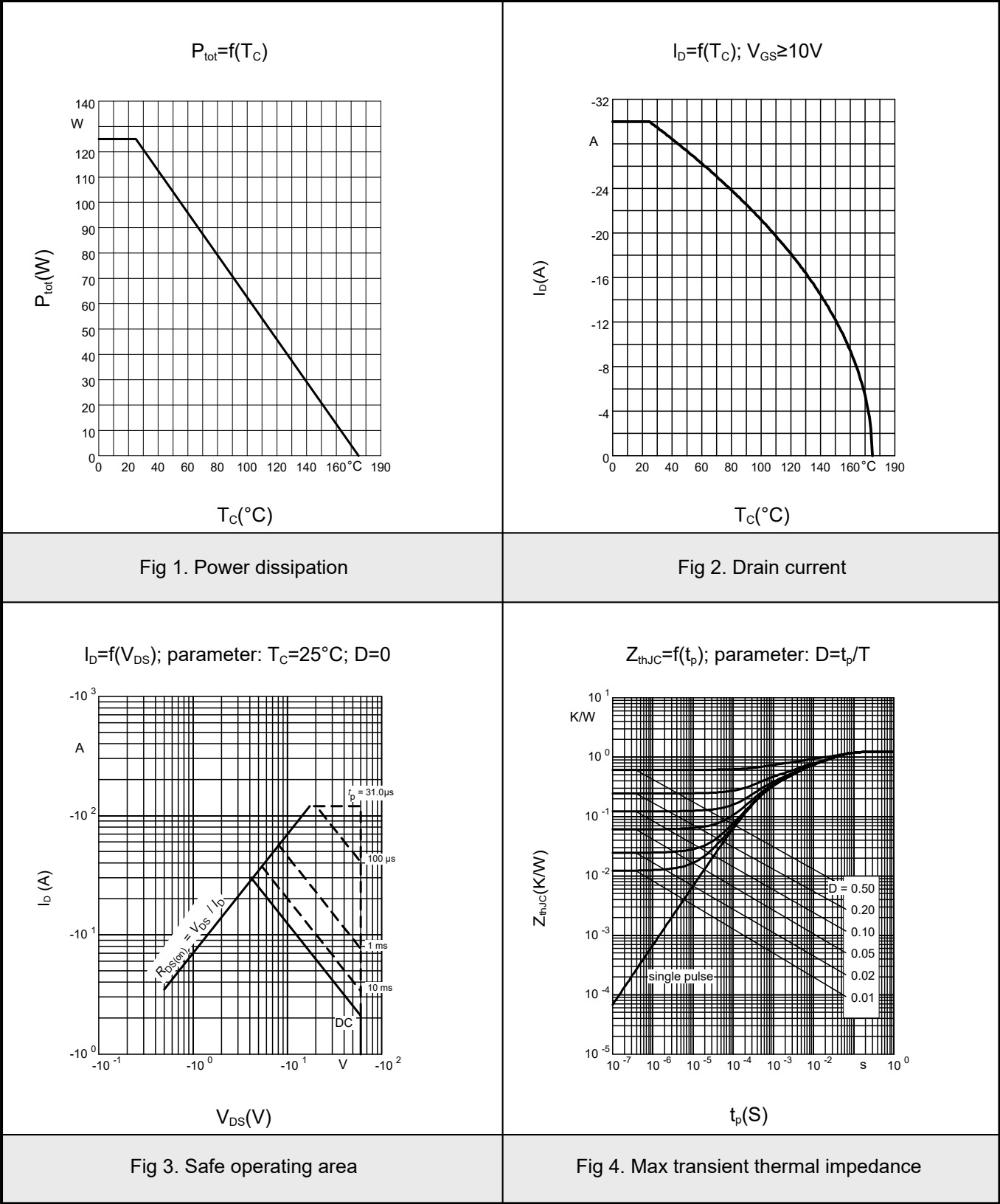


5. Electrical Characteristic (T_J=25°C unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
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 =250μA	-2.1	-3	-4	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		-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} =-10V, I _D =-21.5A		69	75	mΩ
Transconductance	g _{fs}	V _{DS} ≥2*I _D *R _{DS(ON)max} , I _D =-21.5 A	5.2	10.4		S
Input capacitance	C _{iss}	V _{GS} =0V, V _{DS} =-25V, f=1MHz		1228	1535	pF
Output capacitance	C _{oss}			387	383	pF
Reverse transfer capacitance	C _{rss}			142	177	pF
Turn-on delay time	t _{D(on)}	V _{DD} =-30V, V _{GS} =-10V I _D =-21.5A, R _G =1.6Ω		13	19.5	ns
Rise time	t _r			11	16.5	ns
Turn-off delay time	t _{D(off)}			30	45	ns
Fall time	t _f			20	30	ns
Gate to source charge	Q _{gs}	V _{DD} =-48V, I _D =-30A V _{GS} =0 to -10V		3.7	5.6	nC
Gate to drain charge	Q _{gd}			13.8	20.7	nC
Gate charge total	Q _g			32	48	nC
Gate plateau voltage	V _{plateau}			-5.2		V
Inverse diode continuous forward current	I _S	T _C =25°C			-30	A
Inverse diode direct current,pulsed	I _{SM}	T _C =25°C			-120	A
Inverse diode forward voltage	V _{SD}	V _{GS} =0V, I _F =-30A		-1.3	-1.7	V
Reverse recovery time	t _{rr}	V _R =-30V, I _F =I _S , di _F /dt=100A/μs		64.6	97	ns
Reverse recovery charge	Q _{rr}	V _R =-30V, I _F =I _S , di _F /dt=100A/μs		153	230	nC

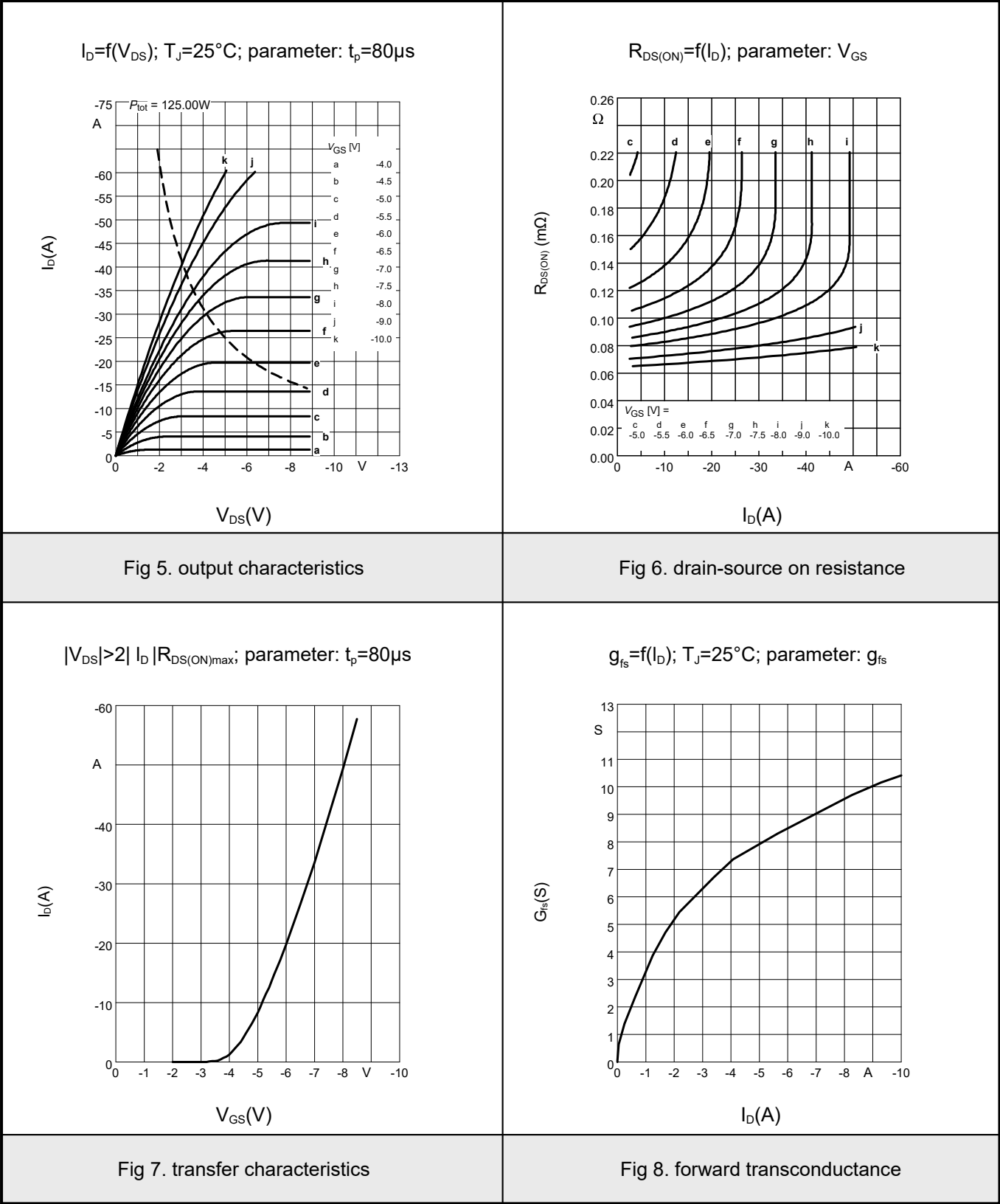


6.1Typical characteristic



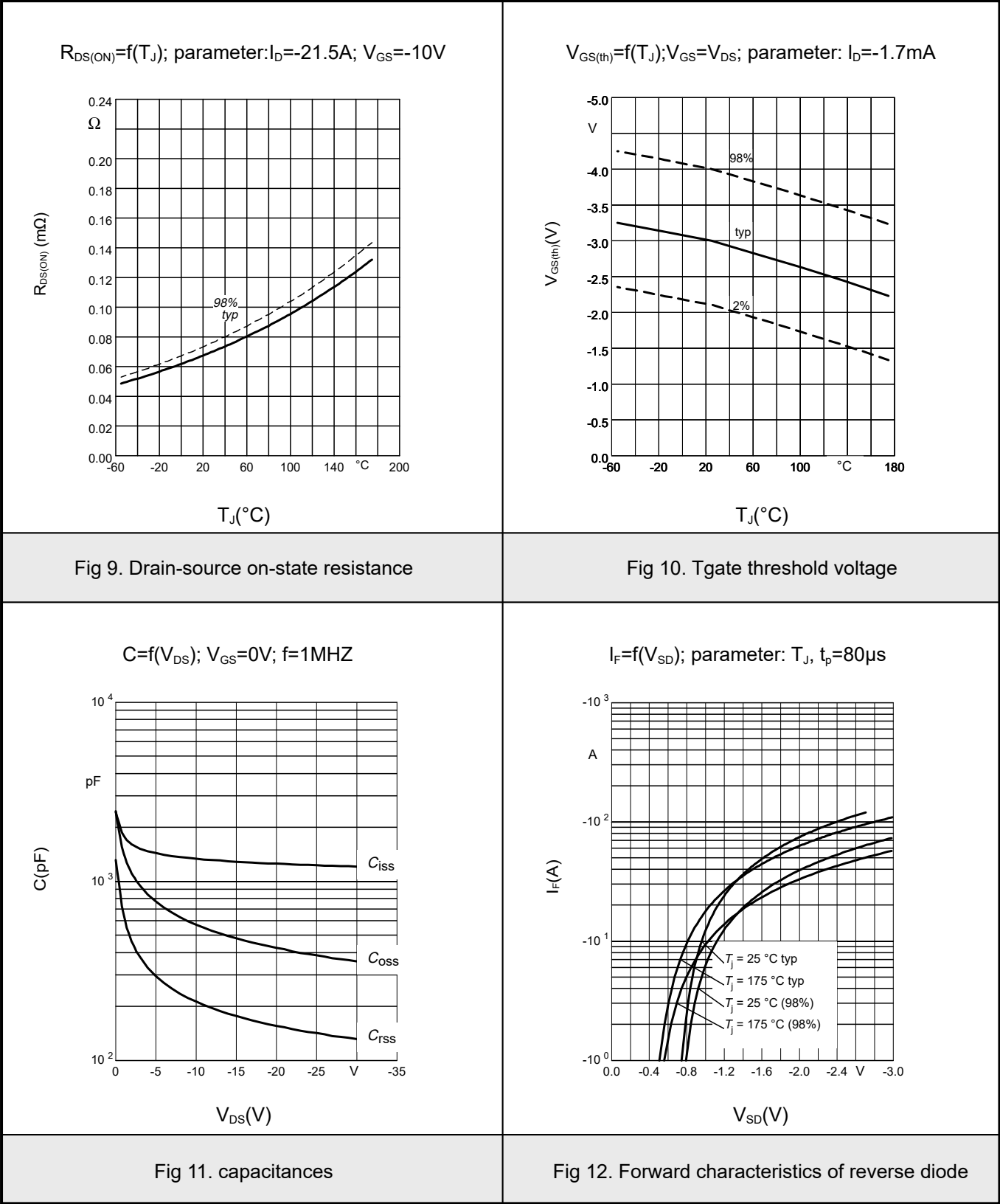


6.2Typical characteristic



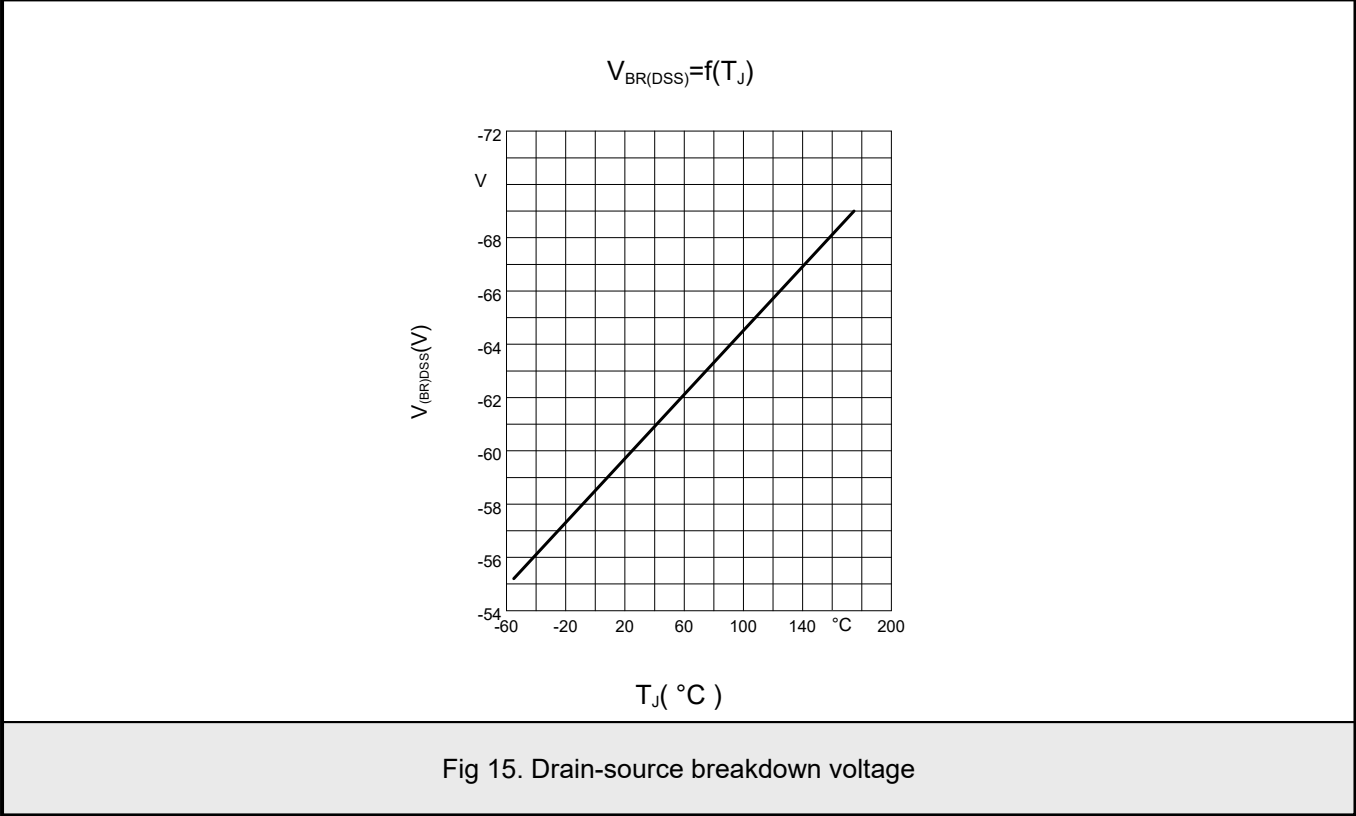
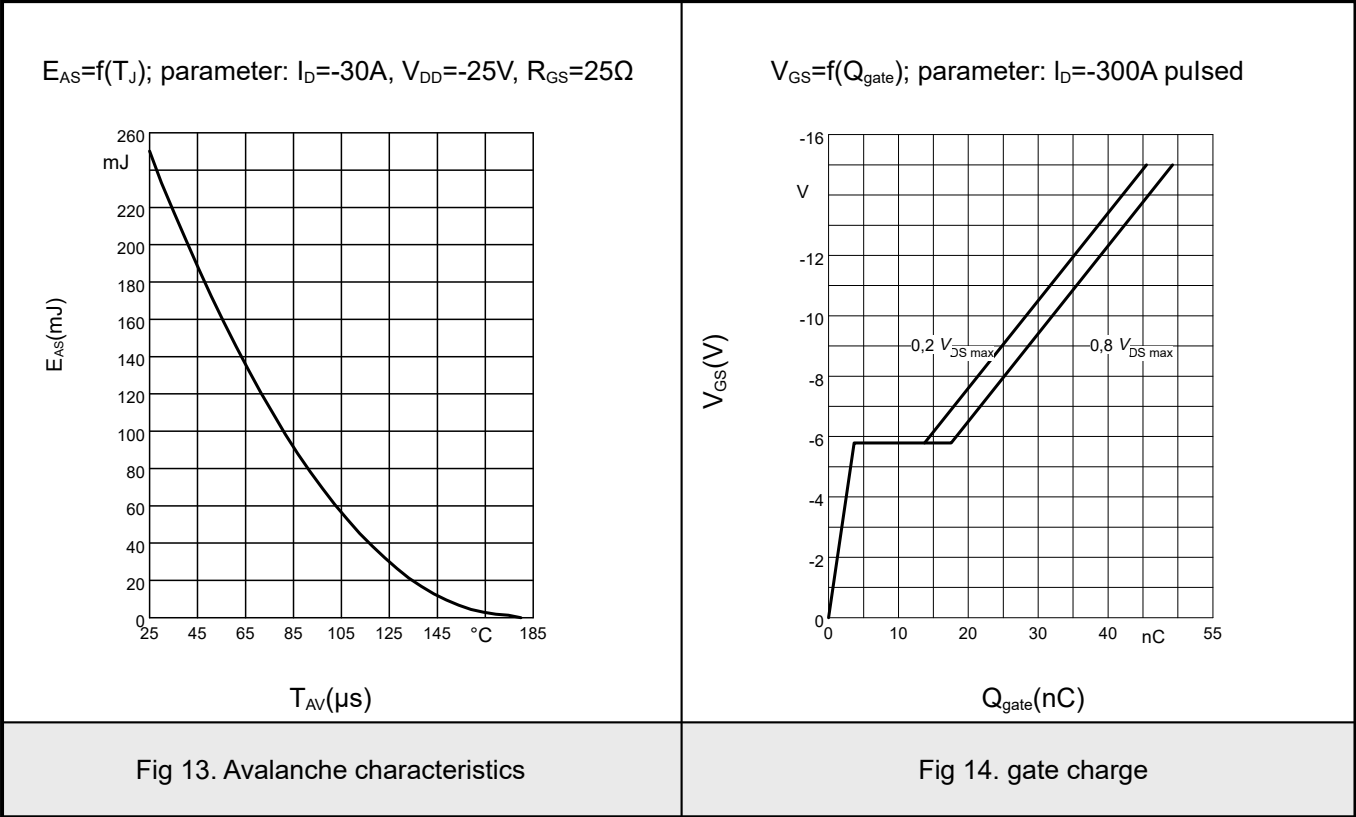


6.3Typical characteristic



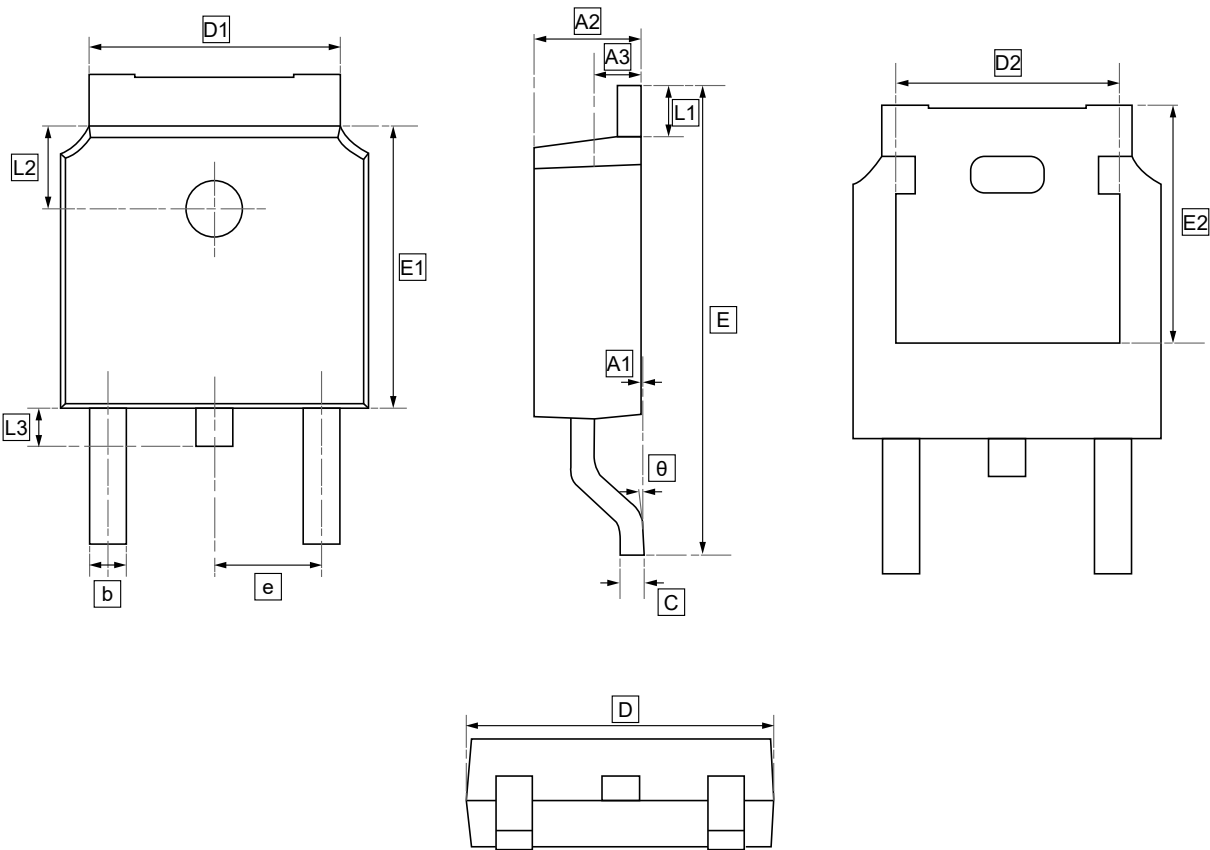


6.4Typical characteristic





7.TO-252 Package Outline Dimensions

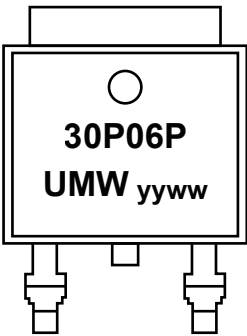


DIMENSIONS (mm are the original dimensions)

Symbol	A1	A2	A3	b	c	D	D1	D2	E	E1	E2	e	L1	L2	L3	θ
Min	0.00	2.18	0.90	0.65	0.46	6.35	4.95	4.32	9.40	5.97	5.21	2.286 BSC	0.89	1.70	0.60	0.00
Max	0.13	2.39	1.10	0.85	0.61	6.73	5.46	4.90	10.41	6.22	5.38		1.27	1.90	1.00	8.00



8.Ordering information



yy: Year Code
ww: Week Code

Order Code	Package	Base QTY	Delivery Mode
UMW SPD30P06PG	TO-252	2500	Tape and reel



9.Disclaimer

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