

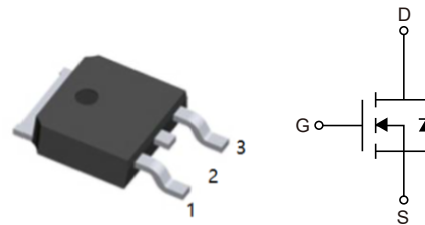
1.Features

- $V_{DS(V)}=100V$
- $I_D=80A$
- $R_{DS(ON)}<8.2m\Omega(V_{GS}=10V)$
- Excellent gate charge x $R_{DS(ON)}$ product (FOM)
- N-channel, normal level
- Very low on-resistance $R_{DS(ON)}$
- 175 °C operating temperature
- Ideal for high-frequency switching and synchronous rectification

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	$T_C=25^{\circ}C^{2)}$	80	A
		$T_C=100^{\circ}C$	58	A
Pulsed drain current ²⁾	$I_{D,pulse}$	$T_C=25^{\circ}C$	320	A
Avalanche current, single pulse	E_{AS}	$I_D=73, R_{GS}=25\Omega$	110	mJ
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 cimatic category; DIN IEC 68-1			55/175/56	



4. Electrical Characteristic ($T_J=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Thermal resistance, junction -case	R_{thJC}				1.2	K/W
Thermal resistance, junction - ambient	R_{thJA}	minimal footprint			62	K/W
		6 cm ² cooling area ³⁾			50	K/W
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=1mA$	100			V
Gate threshold voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=75\mu A$	2	2.7	3.5	V
Zero gate voltage drain current	I_{DSS}	$V_{DS}=100V, V_{GS}=0V, T_J=25^{\circ}\text{C}$		0.1	1	μA
		$V_{DS}=100V, V_{GS}=0V, T_J=125^{\circ}\text{C}$		10	100	μA
Gate-source leakage current	I_{GSS}	$V_{GS}=20V, V_{DS}=0V$		1	100	nA
Drain-source on-state resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=73A$		7	8.2	m Ω
		$V_{GS}=6V, I_D=36A$		8.9	15	m Ω
Gate resistance	R_G			1		Ω
Transconductance	g_{FS}	$ V_{DS} >2 I_D R_{DS(ON)max}, I_D=80A$		89		S
Input capacitance	C_{iss}	$V_{GS}=0V, V_{DS}=50V, f=1MHz$		2990	3980	pF
Output capacitance	C_{oss}			523	696	pF
Reverse transfer capacitance	C_{rss}			21		pF
Turn-on delay time	$t_{D(on)}$	$V_{DD}=50V, V_{GS}=10V$ $I_D=73A, R_{G,ext}=1.6\Omega$	45	18		ns
Rise time	t_r			42		ns
Turn-off delay time	$t_{D(off)}$			31		ns
Fall time	t_f			8		ns



Gate to source charge	Q_{gs}	$V_{DD}=50V, I_D=73A$ $V_{GS}=0 \text{ to } 10V$		15		nC
Gate to drain charge	Q_{gd}			8		nC
Switching charge	Q_{SW}			14		nC
Gate charge total	Q_g			42	55	nC
Gate plateau voltage	$V_{plateau}$			4.9		V
Output charge	Q_{oss}	$V_{DD}=50V, V_{GS}=0V$		55	73	nC
Diode continuous forward current	I_S	$T_C=25^\circ C$			80	A
Diode pulse current	$I_{S,pulse}$				320	A
Diode forward voltage	V_{SD}	$V_{GS}=0V, I_F=80A, T_J=25^\circ C$		1	1.2	V
Reverse recovery time	t_{rr}	$V_R=50V, I_F=73A, di_F/dt=100A/\mu s$		71		ns
Reverse recovery charge	Q_{rr}			123		nC

Notes:

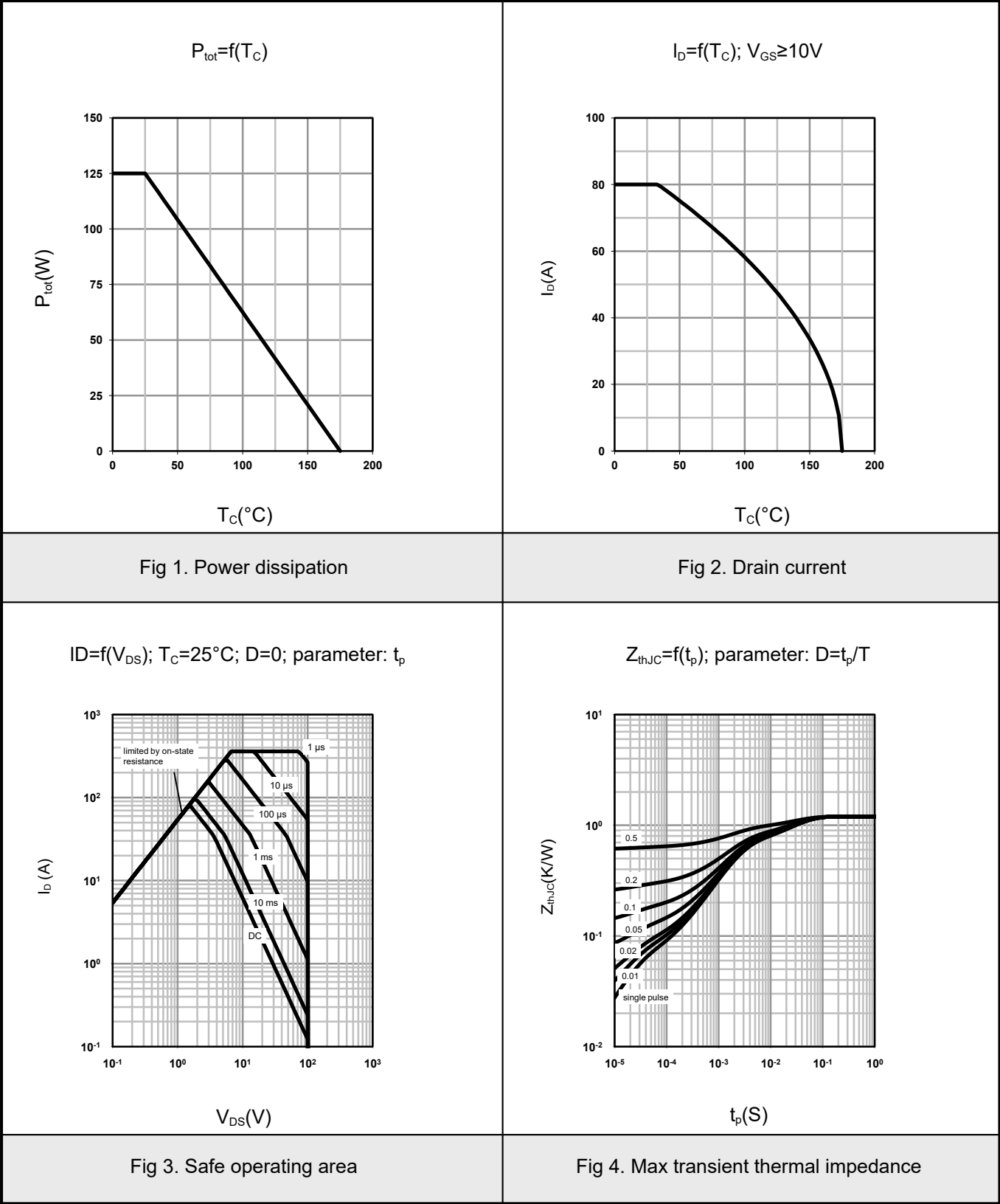
³⁾ Device on 40 mm x 40 mm x 1.5 mm epoxy PCB FR4 with 6 cm² (one layer, 70 μm thick) copper area for drain connection.

PCB is vertical in still air.

⁴⁾ See figure 16 for gate charge parameter definition.

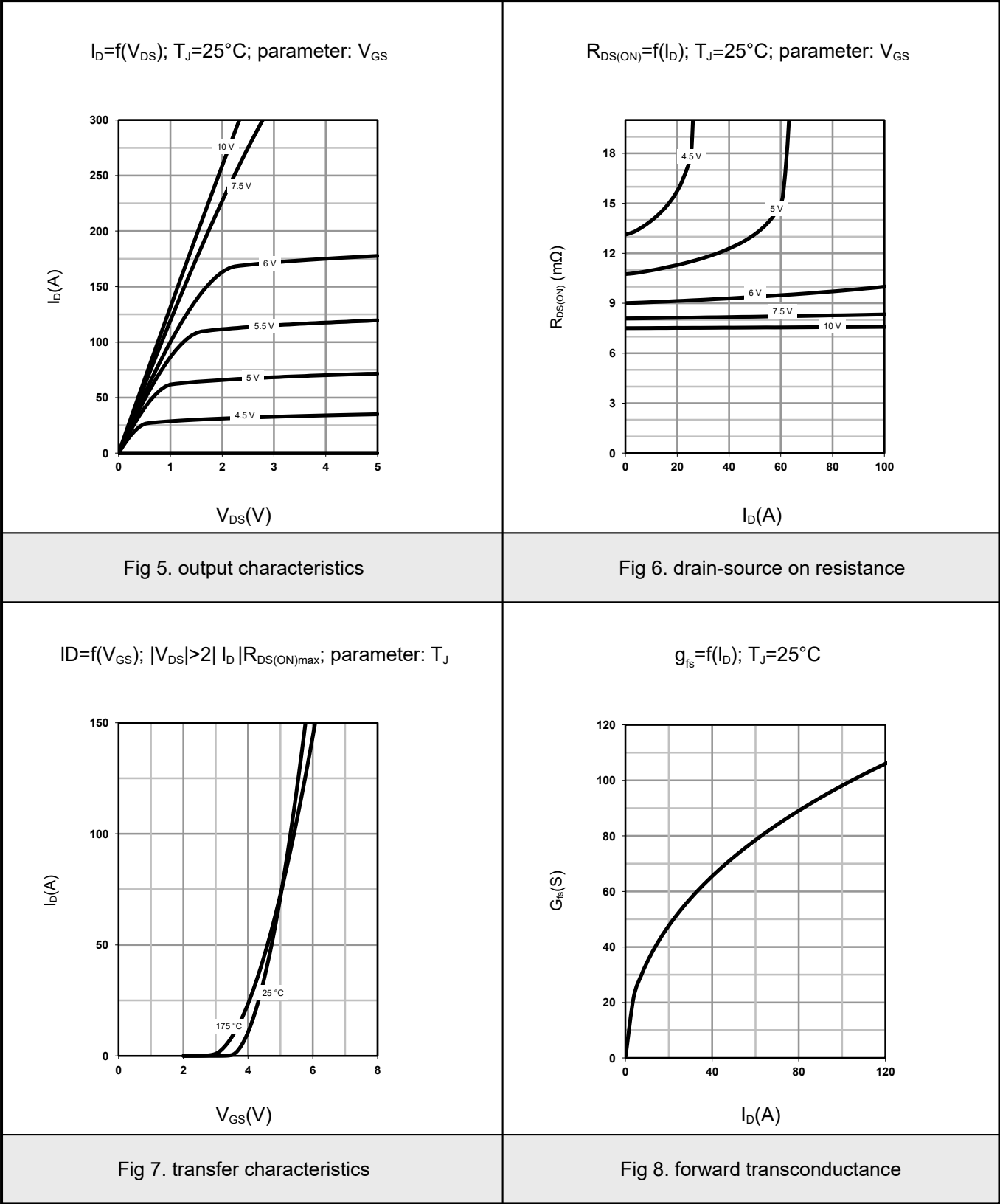


5.1Typical characteristic



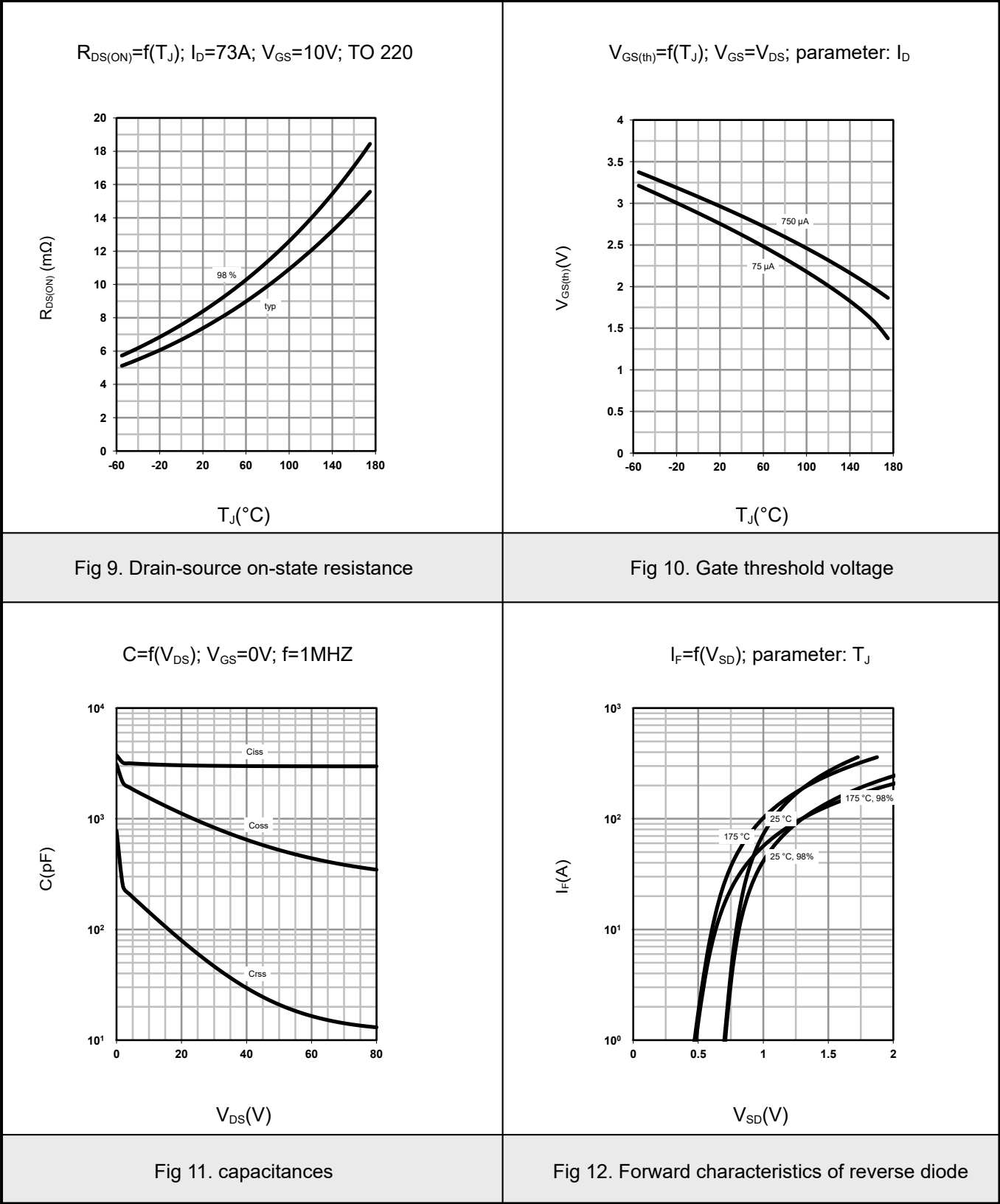


5.2Typical characteristic



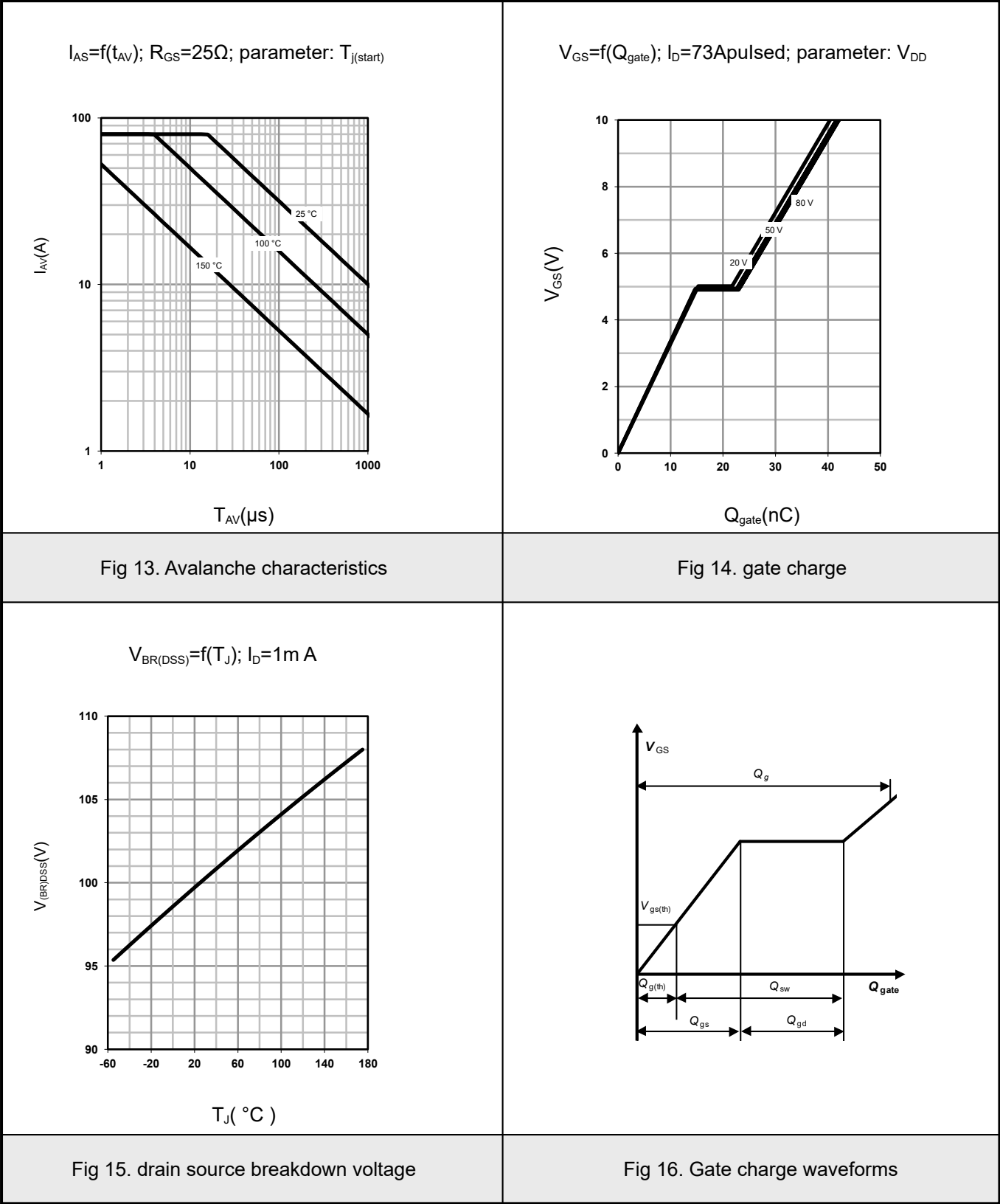


5.3Typical characteristic



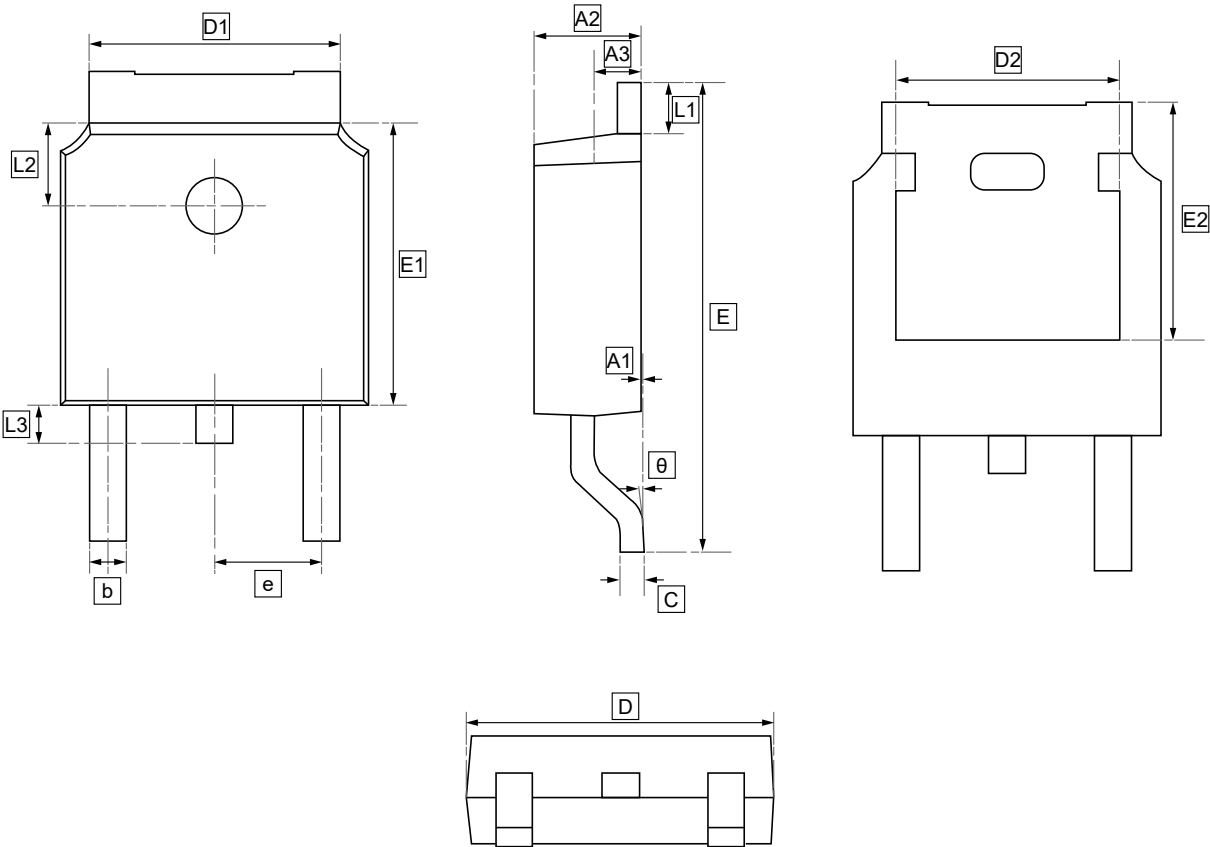


5.4Typical characteristic





6.TO-252 Package Outline Dimensions

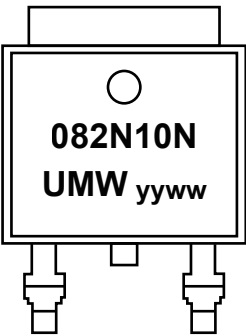


DIMENSIONS (mm are the original dimensions)

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



7.Ordering information



yy: Year Code
ww: Week Code

Order Code	Package	Base QTY	Delivery Mode
UMW IPD082N10N3G	TO-252	2500	Tape and reel



8.Disclaimer

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