

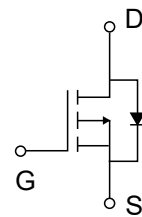
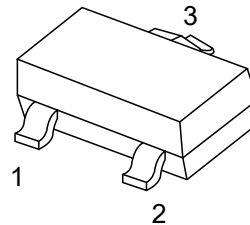
1.1 Features

- $V_{DS(V)} = -12V$
- $R_{DS(ON)} < 50m\Omega (V_{GS} = -4.5V)$
- $R_{DS(ON)} < 85m\Omega (V_{GS} = -2.5V)$
- $R_{DS(ON)} < 125m\Omega (V_{GS} = -1.8V)$

2. Pinning information

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

SOT-23



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

Parameter		Symbol	Value	Units
Drain-Source Voltage		V _{DS}	-12	V
Gate-Source Voltage		V _{GS}	±8	
Continuous Drain Current, V _{GS} =4.5V	T _A =25°C	I _D	-4.3	A
Continuous Drain Current, V _{GS} =4.5V	T _A =70°C		-3.4	
Pulsed Drain Current ^a		I _{DM}	-34	
Power Dissipation	T _A =25°C	P _D	1.3	W
Power Dissipation	T _A =70°C		0.8	
Single Pulse Avalanche Energy ^b		E _{AS}	33	mJ



Thermal Resistance.Junction- to-Ambient	R_{thJA}	100	°C/W
Linera Derating Factor		0.01	W/°C
Junction Temperature	T_J	150	°C
Junction and Storage Temperature Range	T_{STG}	-55 to 150	

Notes:

- a.Repetitive Rating :Pulse width limited by maximum junction temperature.
- b.Starting $T_J=25^{\circ}\text{C}$, $L=3.5\text{mH}$, $R_G=25\Omega$, $I_{AS}=-4.3\text{A}$.

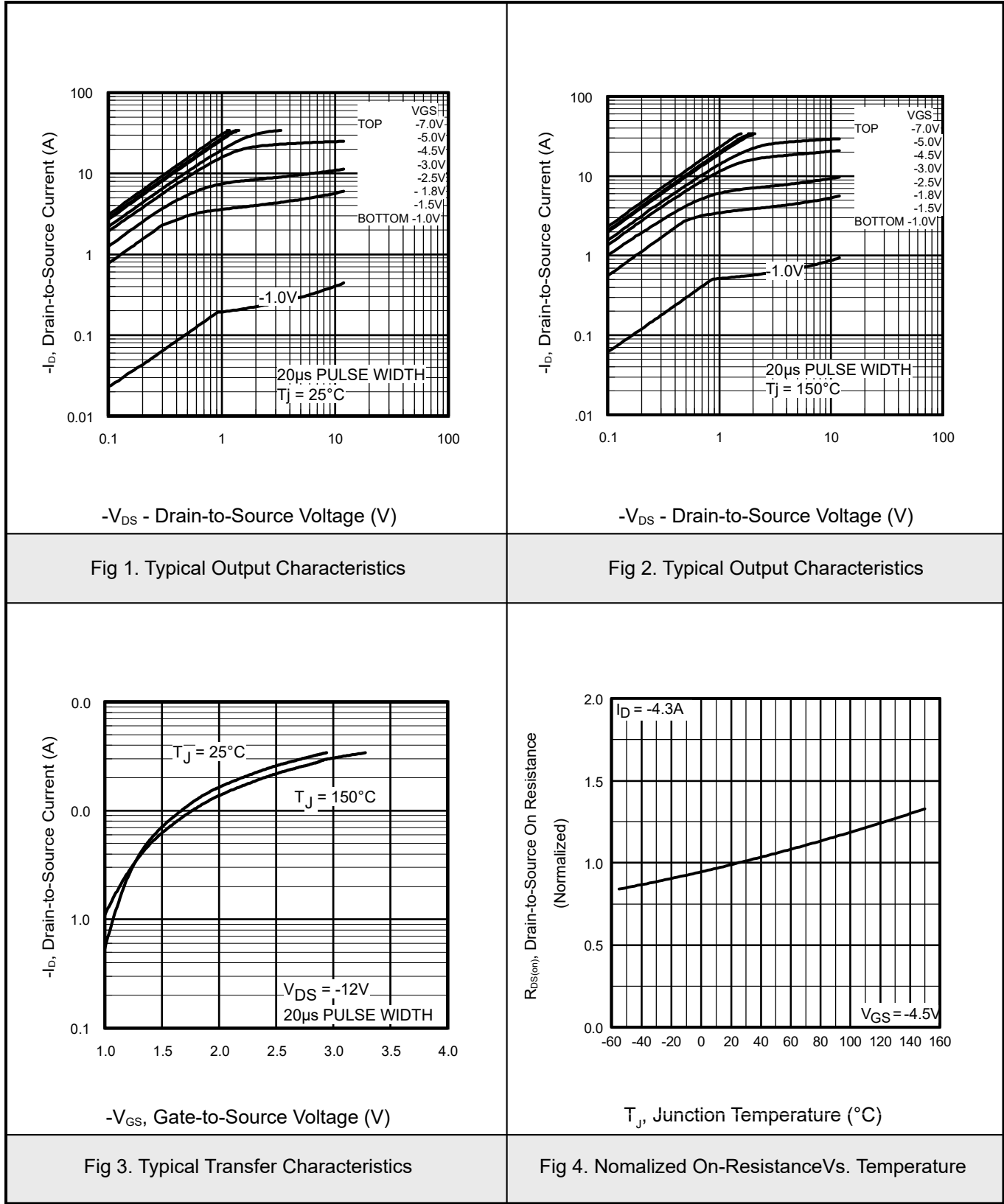


4. Electrical Characteristics $T_A=25^\circ\text{C}$

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	V_{DSS}	$I_D=250\mu\text{A}$, $V_{GS}=0\text{V}$	-12			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-12\text{V}$, $V_{GS}=0\text{V}$			-1	μA
		$V_{DS}=-9.6\text{V}$, $V_{GS}=0\text{V}$, $T_J=55^\circ\text{C}$			-25	
Gate-Body leakage current	I_{GSS}	$V_{DS}=0\text{V}$, $V_{GS}=\pm 8\text{V}$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$, $I_D=-250\mu\text{A}$	-0.4	-0.55	-0.95	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=-4.5\text{V}$, $I_D=-4.3\text{A}$			50	m Ω
		$V_{GS}=-2.5\text{V}$, $I_D=-2.5\text{A}$			85	
		$V_{GS}=-1.8\text{V}$, $I_D=-2\text{A}$			125	m Ω
Forward Transconductance	g_{FS}	$I_D=-4.3\text{A}$, $V_{DS}=-10\text{V}$	8.6			S
Input Capacitance	C_{iss}	$V_{GS}=0\text{V}$, $V_{DS}=-10\text{V}$, $f=1\text{MHz}$		830		pF
Output Capacitance	C_{oss}			180		pF
Reverse Transfer Capacitance	C_{rss}			125		pF
Total Gate Charge	Q_g	$V_{GS}=-5\text{V}$		10	15	nC
Gate Source Charge	Q_{gs}	$V_{DS}=-10\text{V}$		1.4	2.1	nC
Gate Drain Charge	Q_{gd}	$I_D=-4.3\text{A}$		2.6	3.9	nC
Turn-On DelayTime	$t_{D(on)}$	$I_D=-1\text{A}$, $V_{DS}=-6\text{V}$ $R_L=6\Omega$, $R_{GEN}=89\Omega$		11		ns
Turn-On Rise Time	t_r			32		ns
Turn-Off DelayTime	$t_{D(off)}$			250		ns
Turn-Off Fall Time	t_f			210		ns
Body Diode Reverse Recovery Time	t_{rr}	$I_F=-1.3\text{A}$, $dI/dt=-100\text{A}/\mu\text{s}$		22	33	ns
Body Diode Reverse Recovery Charge	Q_{rr}	$I_F=-1.3\text{A}$, $dI/dt=-100\text{A}/\mu\text{s}$		8	12	nC
Maximum Body-Diode Continuous Current	I_S				1.3	A
Diode Forward Voltage	V_{SD}	$I_S=-1.3\text{A}$, $V_{GS}=0\text{V}$			-1.2	V

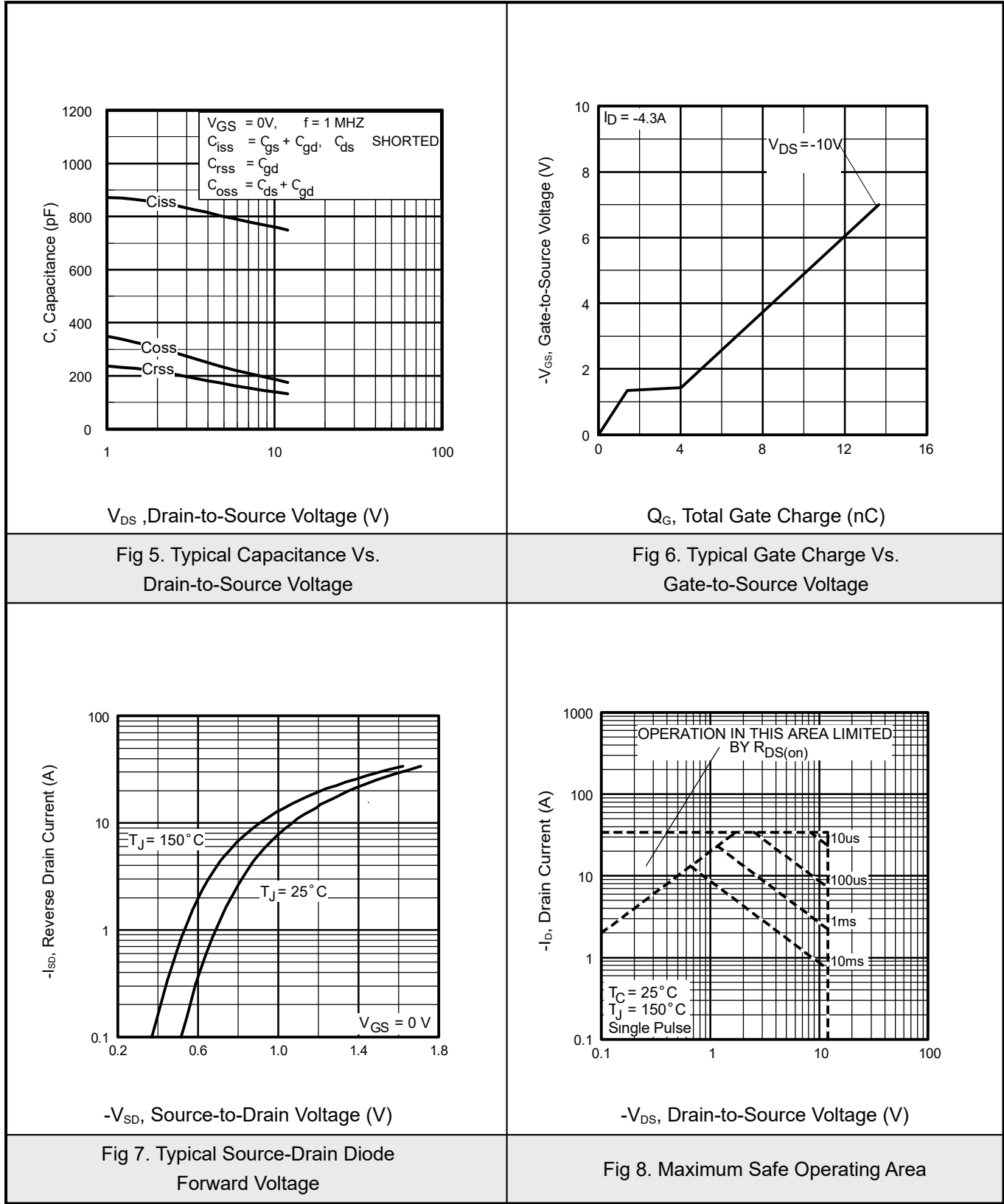


5.1 Typical Characteristics



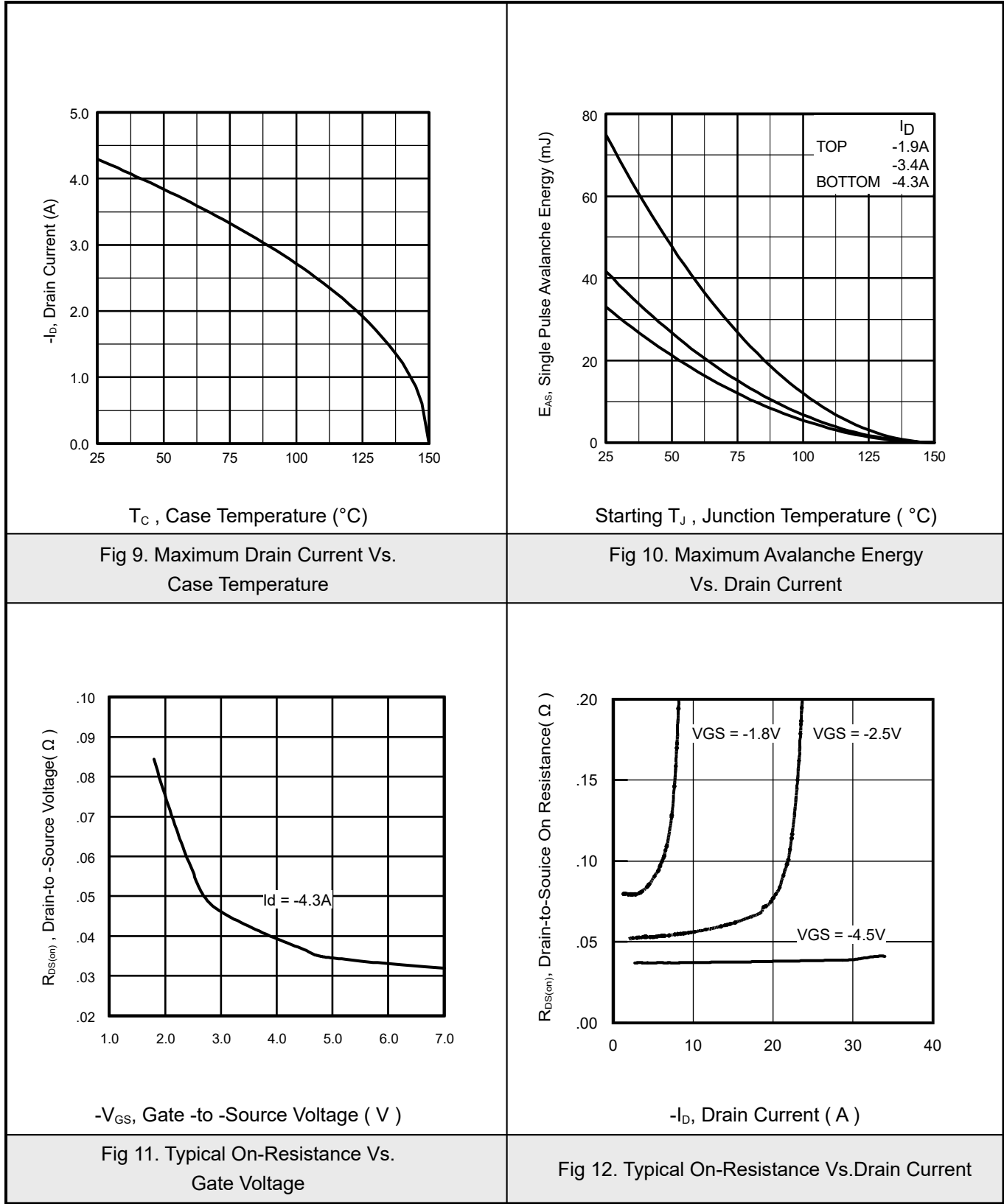


5.2Typical Characteristics





5.3Typical Characterisitics





5.4Typical Characteristics

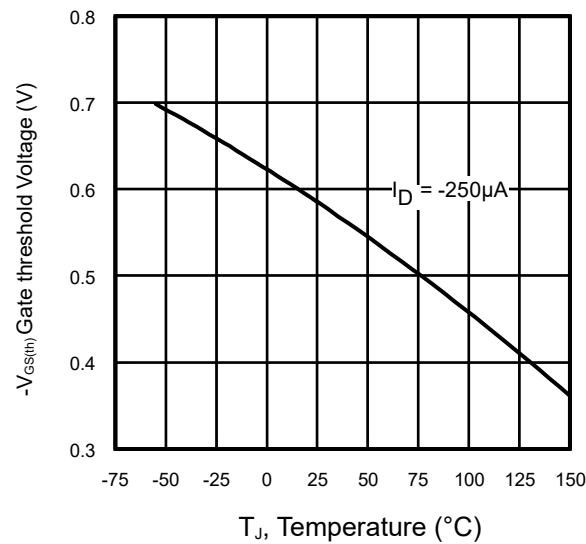


Fig 13. Typical Threshold Voltage Vs. JunctionTemperature

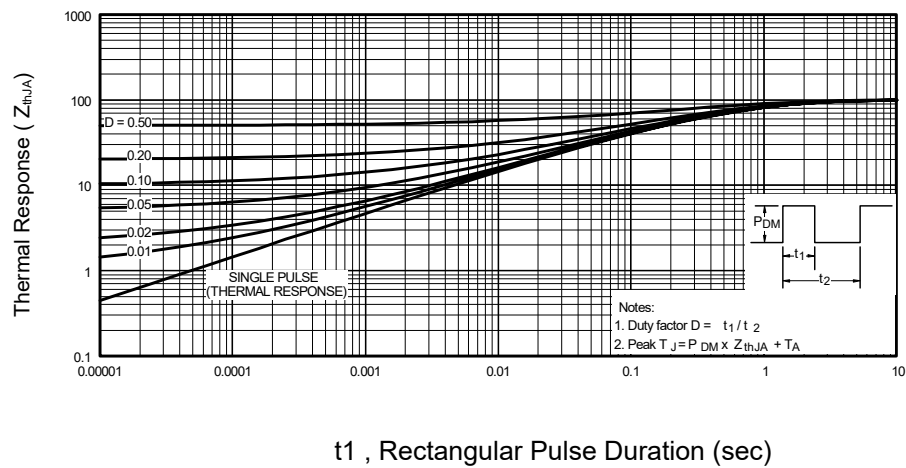
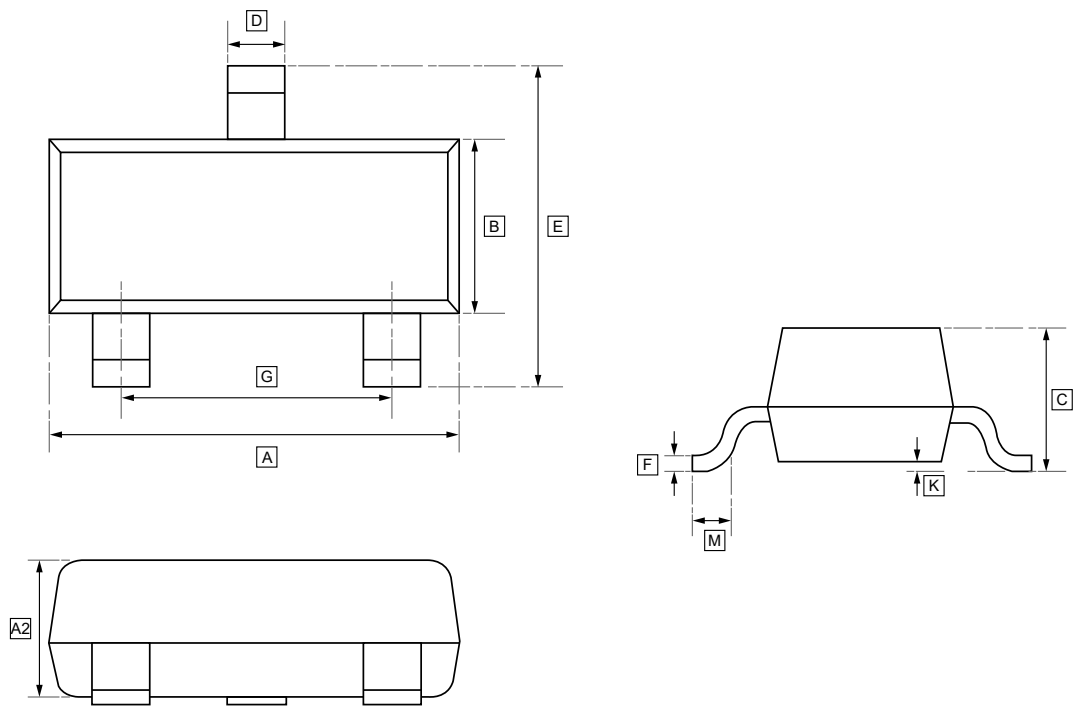


Fig 14. Maximum Effective Transient Thermal Impedance, Junction-to-Ambient



6.SOT-23 Package Outline Dimensions

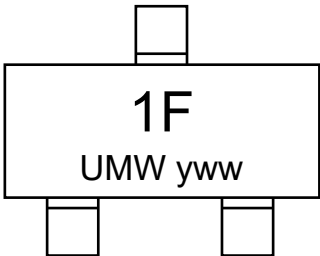


DIMENSIONS (mm are the original dimensions)

Symbol	A	B	C	D	E	G	K	M	A2	F
Min	2.85	1.20	0.90	0.40	2.25	1.80	0.00	0.30	0.95	0.095
Max	3.04	1.40	1.10	0.50	2.55	2.00	0.10	-	1.05	0.115



7.Ordering information



yww: Batch Code

Order Code	Package	Base QTY	Delivery Mode
UMW IRLML6401TR	SOT-23	3000	Tape and reel



8.Disclaimer

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