

1.Features

- $V_{DS(V)}=30V$
- $R_{DS(ON)}<63m\Omega(V_{GS}=4.5V)$
- $R_{DS(ON)}<80m\Omega(V_{GS}=2.5V)$

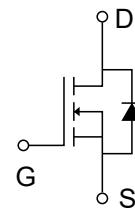
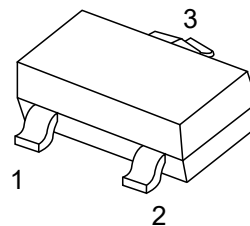
2.Benefits

- Multi-vendor compatibility
- Environmentally friendly
- Increased reliability

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	Value	Units
Drain-Source Voltage		V_{DS}	30	V
Continuous Drain Current, V_{GS} @ 10V	$T_A=25^{\circ}C$	I_D	3.4	A
Continuous Drain Current, V_{GS} @ 10V	$T_A=70^{\circ}C$		2.7	
Pulsed Drain Current		I_{DM}	17	
Maximum Power Dissipation	$T_A=25^{\circ}C$	P_D	1.3	W
Maximum Power Dissipation	$T_A=70^{\circ}C$		0.8	
Linear Derating Factor			0.01	W/ $^{\circ}C$
Gate-to-Source Voltage		V_{GS}	± 12	V
Junction and Storage Temperature Range		T_J, T_{STG}	-55 to 150	$^{\circ}C$



5. Thermal resistance rating

Parameter	Symbol	Typ	Max	Units
Junction-to-Ambient ③	$R_{\theta JA}$		100	°C/W
Junction-to-Ambient ($t < 10s$) ③	$R_{\theta JA}$		99	°C/W

Notes:

- ① Repetitive rating; pulse width limited by max. junction temperature.
- ② Pulse width $\leq 400\mu s$; duty cycle $\leq 2\%$.
- ③ Surface mounted on 1 in square Cu board.



6. Electrical Characteristics $T_J=25^{\circ}\text{C}$

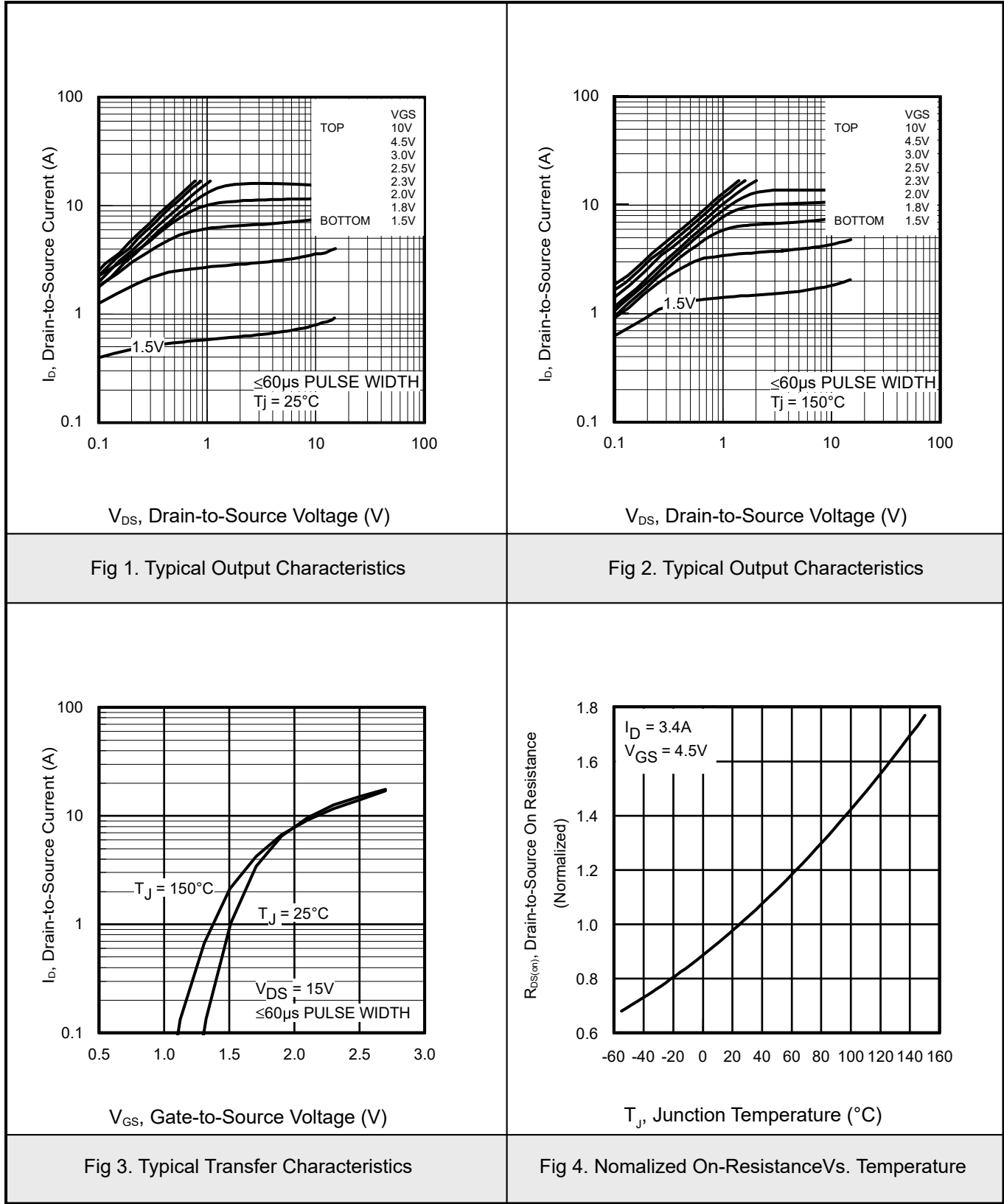
Parameter	Symbol	Conditions	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=250\mu\text{A}$, $V_{GS}=0\text{V}$	30			V
Breakdown Voltage Temp. Coefficient	$\Delta V_{(BR)DSS}/\Delta T_J$	$I_D=1\text{mA}$, Reference to 25°C		0.02		V/ $^{\circ}\text{C}$
Static Drain-to-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=4.5\text{V}$, $I_D=3.4\text{A}$ ②		46	63	m Ω
		$V_{GS}=2.5\text{V}$, $I_D=2.7\text{A}$ ②		59	80	
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$, $I_D=10\mu\text{A}$	0.5	0.8	1.1	V
Drain-to-Source Leakage Current	I_{DSS}	$V_{DS}=24\text{V}$, $V_{GS}=0\text{V}$			1	μA
		$V_{DS}=24\text{V}$, $V_{GS}=0\text{V}$, $T_J=125^{\circ}\text{C}$			150	
Gate-to-Source Forward Leakage	I_{GSS}	$V_{GS}=12\text{V}$			100	nA
Gate-to-Source Reverse Leakage		$V_{GS}=-12\text{V}$			-100	
Internal Gate Resistance	R_G			3.9		Ω
Forward Transconductance	g_{fs}	$V_{DS}=10\text{V}$, $I_D=3.4\text{A}$	9.5			S
Total Gate Charge	Q_g	$V_{DS}=15\text{V}$		2.9		nC
Gate-to-Source Charge	Q_{gs}	$V_{GS}=4.5\text{V}$ ②		0.13		
Gate-to-Drain ("Miller") Charge	Q_{gd}	$I_D=3.4\text{A}$		1.1		
Turn-On Delay Time	$t_{D(on)}$	$V_{DD}=15\text{V}$ ②		3.3		ns
Rise Time	t_r	$I_D=1\text{A}$		4		
Turn-Off Delay Time	$t_{D(off)}$	$R_G=6.8\Omega$		12		
Fall Time	t_f	$V_{GS}=4.5\text{V}$		4.9		
Input Capacitance	C_{iss}	$V_{GS}=0\text{V}$		270		pF
Output Capacitance	C_{oss}	$V_{DS}=24\text{V}$		32		
Reverse Transfer Capacitance	C_{rss}	$f=1\text{MHz}$		21		



Source-Drain Ratings and Characteristics						
Continuous Source Current (Body Diode)	I_S	MOSFET symbol showing the integral reverse p-n junction diode.			1.3	A
Pulsed Source Current (Body Diode) ①	I_{SM}				17	
Diode Forward Voltage	V_{SD}		$T_J=25^{\circ}\text{C}, I_S=3.4\text{A}, V_{GS}=0\text{V}$ ②		1.2	V
Reverse Recovery Time	t_{rr}		$T_J=25^{\circ}\text{C}, V_R=24\text{V}, I_F=1.3\text{A}$	8.8	13	ns
Reverse Recovery Charge	Q_{rr}		$dI/dt=100\text{A}/\mu\text{s}$ ②	2.7	4.1	nC

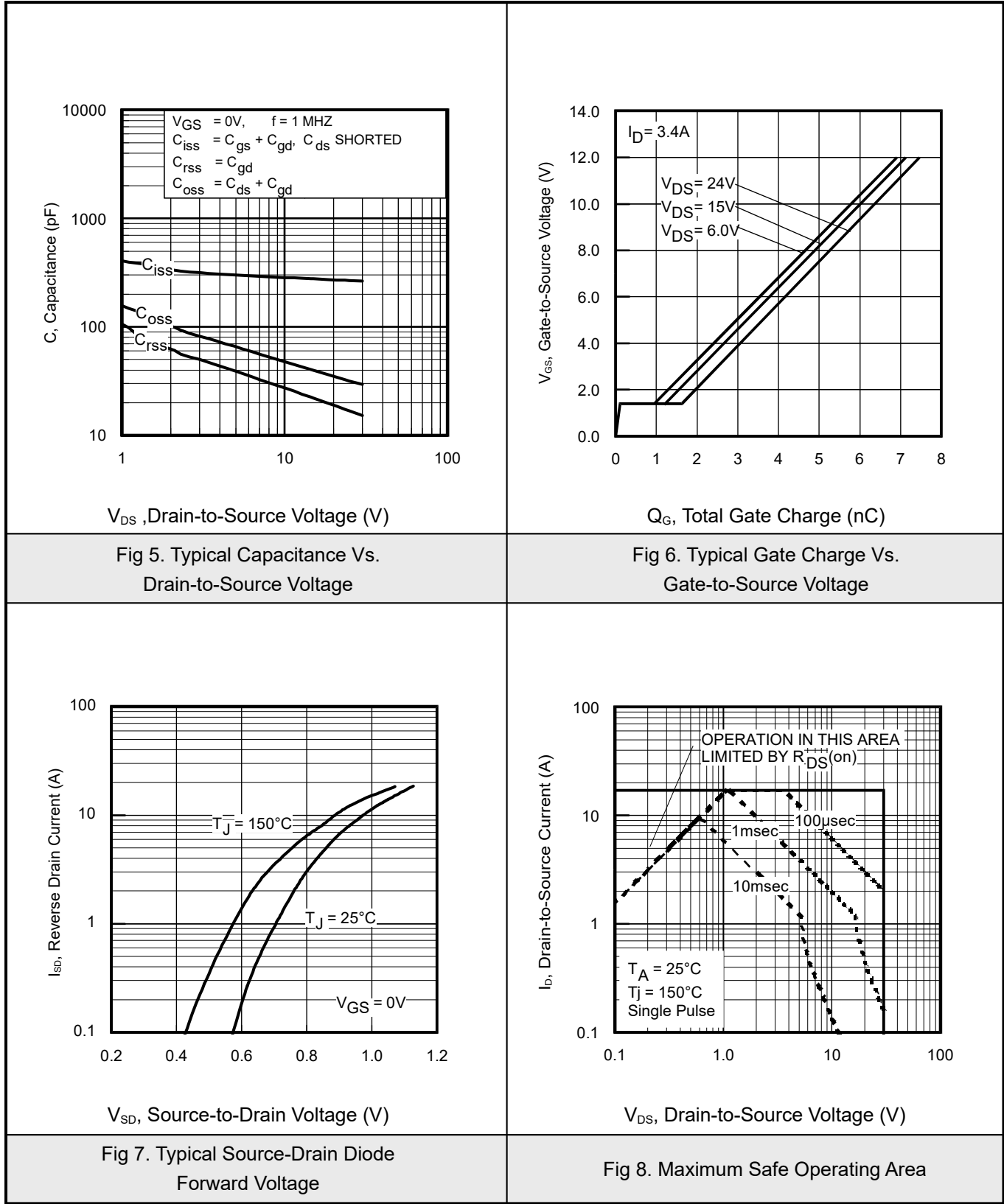


7.1Typical Characteristics



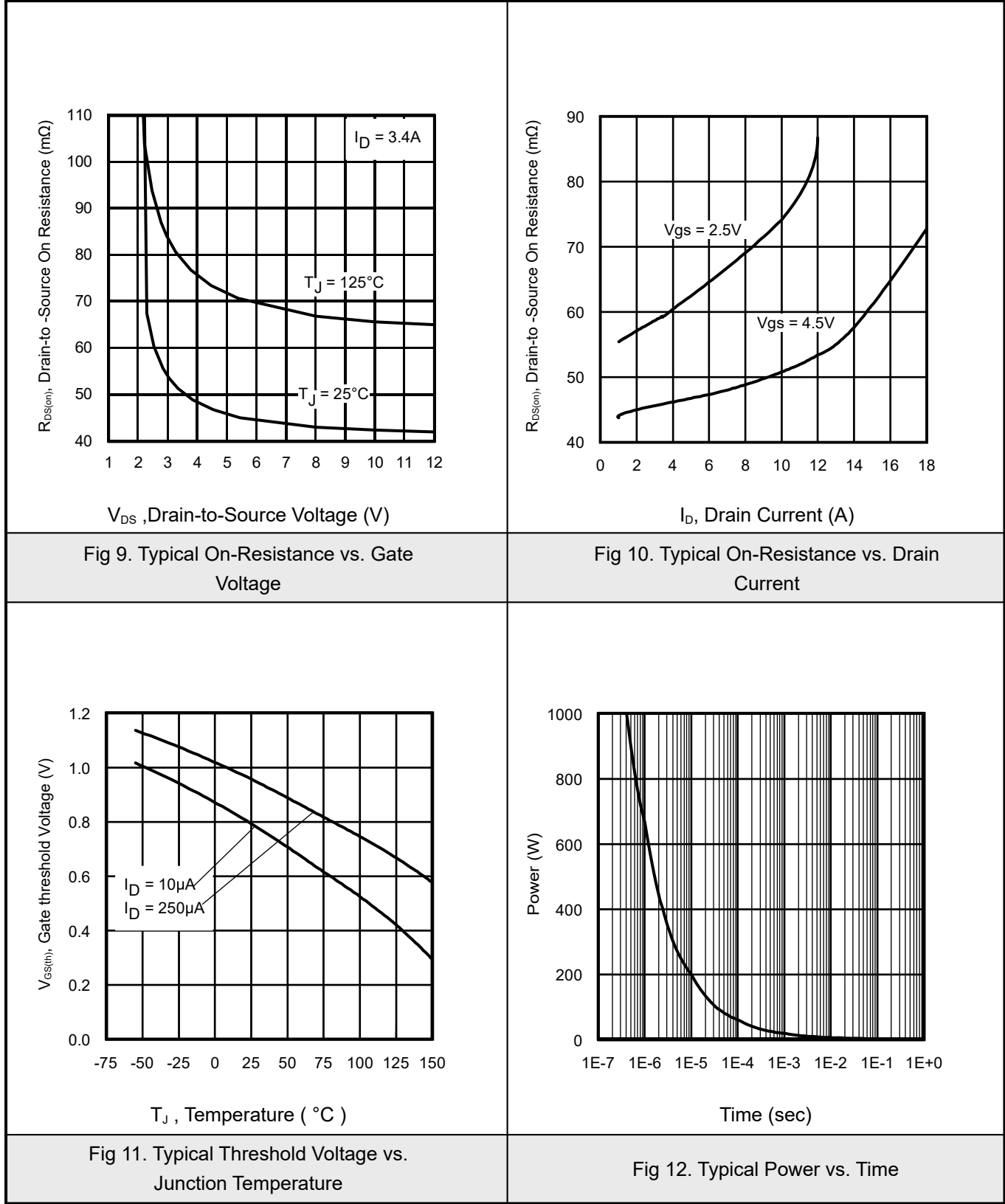


7.2Typical Characteristics





7.3Typical Characterisitics





7.4Typical Characterisitics

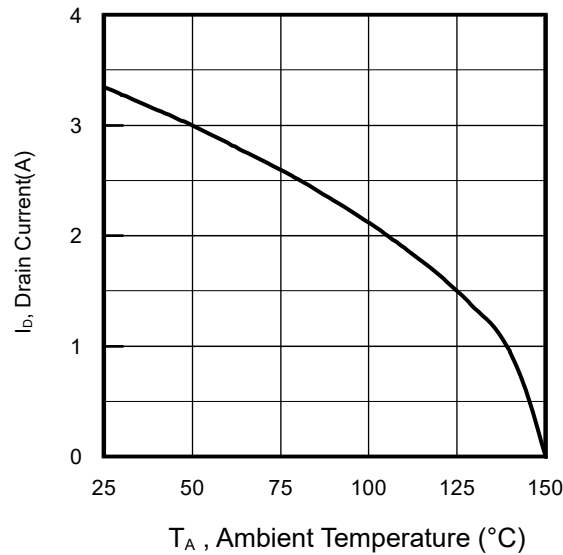


Fig 13. Maximum Drain Current vs. Ambient Temperature

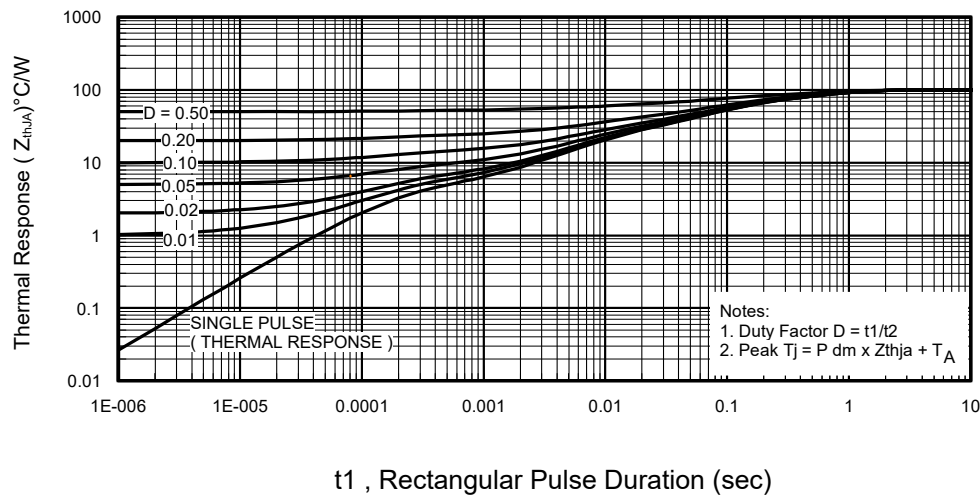


Fig 14. Typical Effective Transient Thermal Impedance, Junction-to-Ambient



7.5 Typical Characteristics

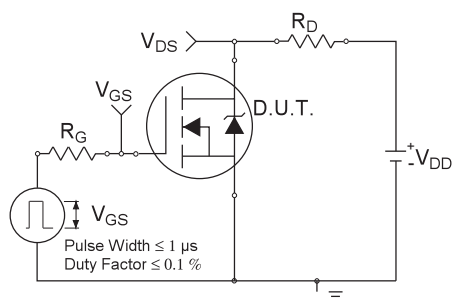


Fig 15a. Switching Time Test Circuit

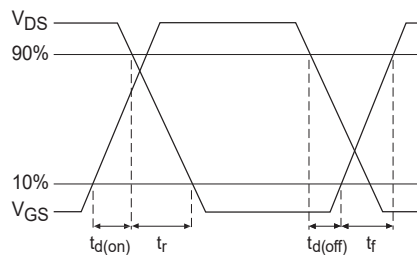


Fig 15b. Switching Time Waveforms

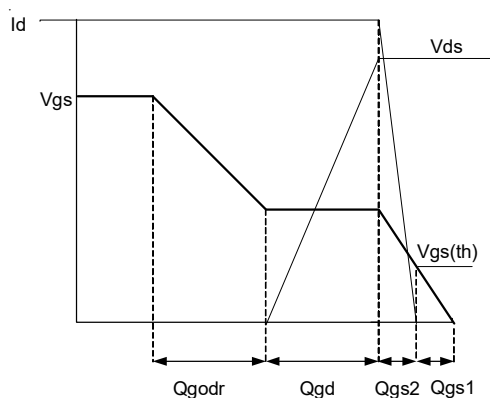


Fig 16a. Basic Gate Charge Waveform

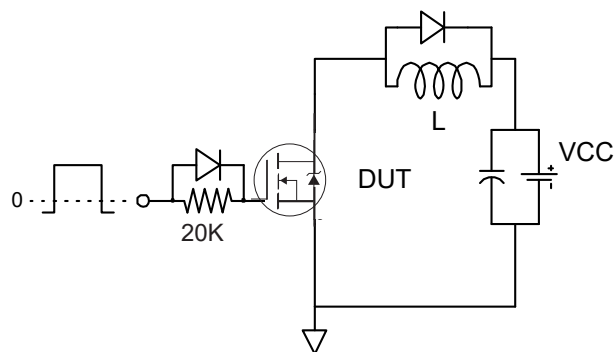
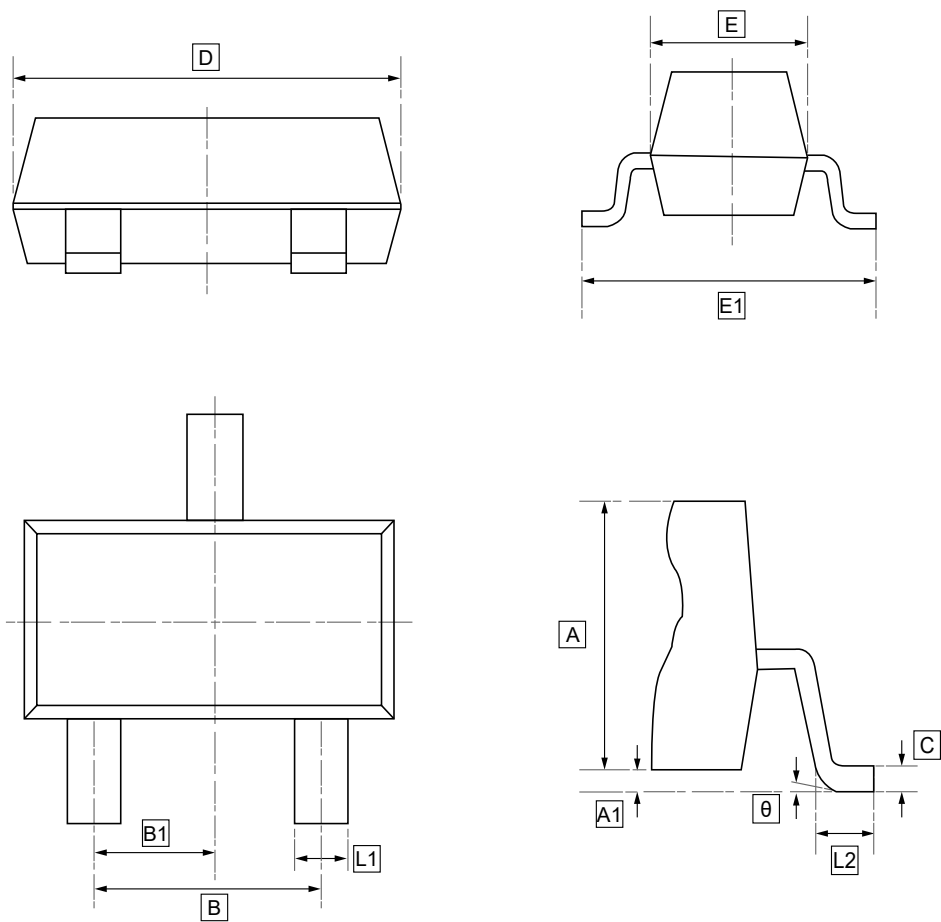


Fig 16b. Gate Charge Test Circuit



8.SOT-23 Package Outline Dimensions

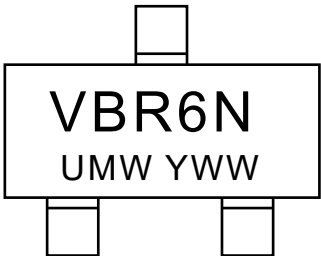


DIMENSIONS (mm are the original dimensions)

Symbol	A	A1	L1	L2	C	D	E	E1	B	B1	θ
Min	1.050	0.000	0.300	0.350	0.100	2.820	1.500	2.700	1.800	0.950	0°
Max	1.150	0.100	0.500	0.550	0.200	3.020	1.700	2.900	2.000	TYP	8°



9.Ordering information



YWW: Batch Code

Order Code	Package	Base QTY	Delivery Mode
UMW IRLML6346TR	SOT-23	3000	Tape and reel



10.Disclaimer

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