

60V P-CHANNEL ENHANCEMENT MODE MOSFET

www.sot23.com.tw Application DC-DC Converters.

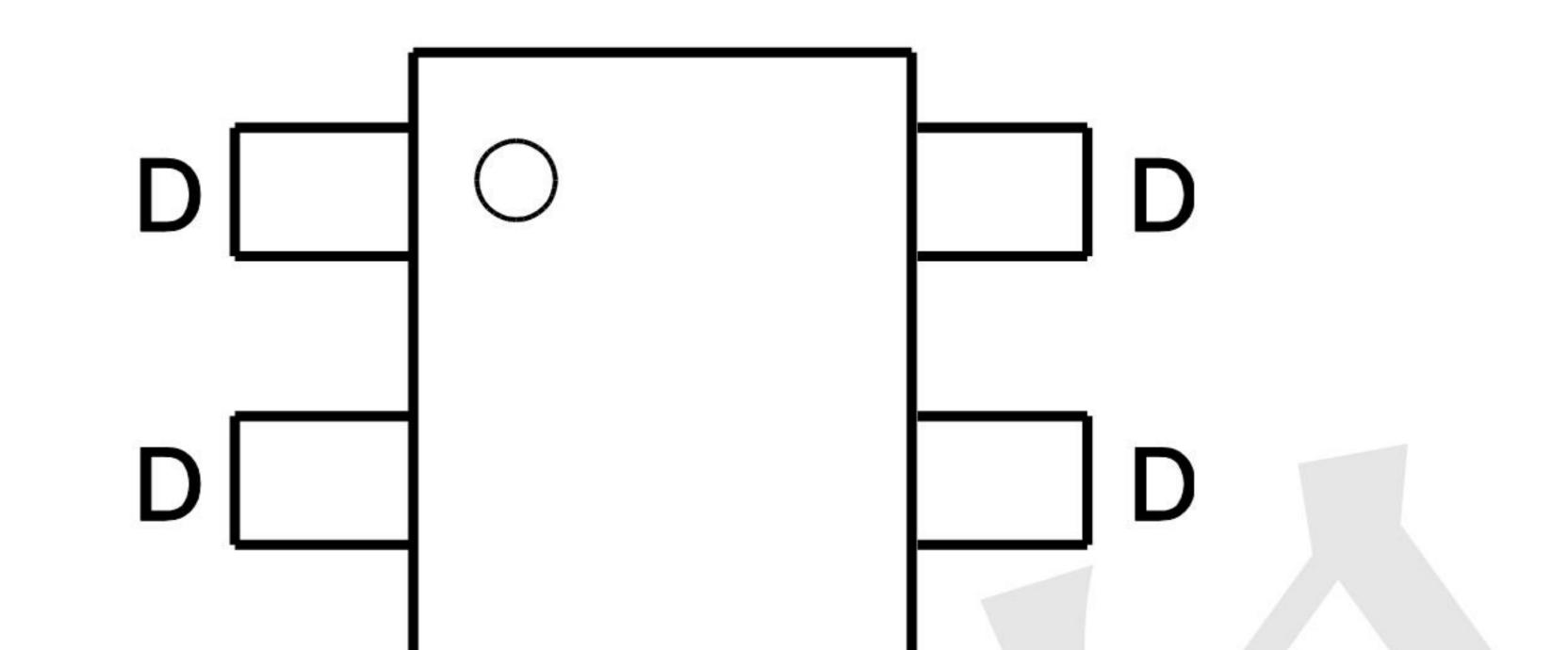
• Load Switch.

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Product Summary

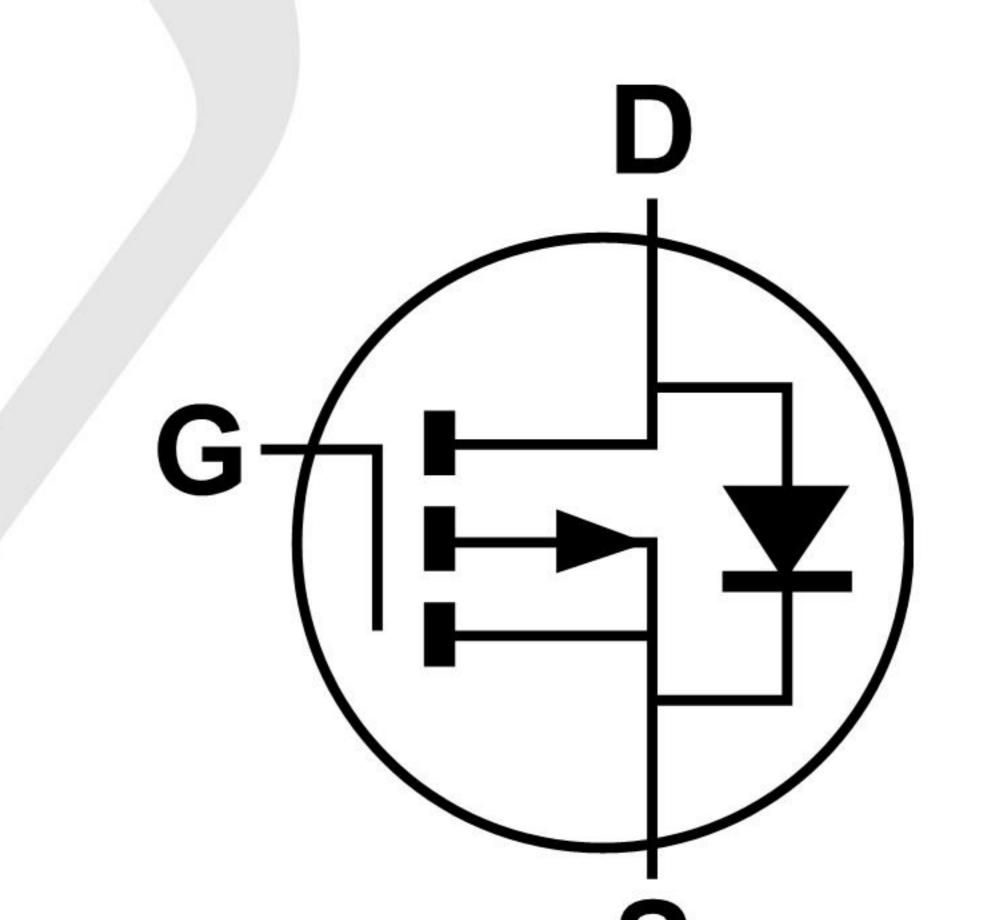
- -60V/-3A
 - $R_{DS(ON)} = 95m\Omega(Typ) @ V_{GS} = -10V$ $R_{DS(ON)} = 130m\Omega(Typ) @ V_{GS} = -4.5V$
- Reliable and Rugged
- Lead Free and Green Devices Available (RoHS Compliant)

Package and Pin Configuration



• Power Management.

Circuit diagram



Equivalent Circuit

Marking: 6A17 Or **P**603P

<u>Absolute Maximum Ratings (T_A=25°C unless otherwise noted)</u>

C	characteristic		Symbol	Value	Unit
Drain-Source Voltage			Vdss	-60	V
Gate-Source Voltage			V _{GS}	±20	V
		(Note 6)		-3	
Continuous Drain Current	$V_{GS} = -10V$	T _A = +70°C (Note 6)	١D	-2.4	A
		(Note 5)		-2.3	
Pulsed Drain Current	$V_{GS} = -10V$	(Note 7)	lом	-13.6	A
Continuous Source Current (Body Diode) (Note 6)		(Note 6)	ls	-2.5	Α
Pulsed Source Current (Body Diode) (Note 7)			ISM	-13.6	A

Thermal Characteristics ($@T_A = +25^{\circ}C$, unless otherwise specified.)

Characteristic	Symbol	Value	Unit		
Power Dissipation	(Note 5)		1.1 8.8		
Linear Derating Factor	(Note 6)	PD	1.92 15.4	mW/°C	
Thermal Resistance, Junction to Ambient	(Note 5)	Data	Dout 113		
Thermal Resistance, Junction to Amblent	(Note 6)	Reja	65	°C/W	
Operating and Storage Temperature Range	Tj, Tstg	-55 to +150	°C		



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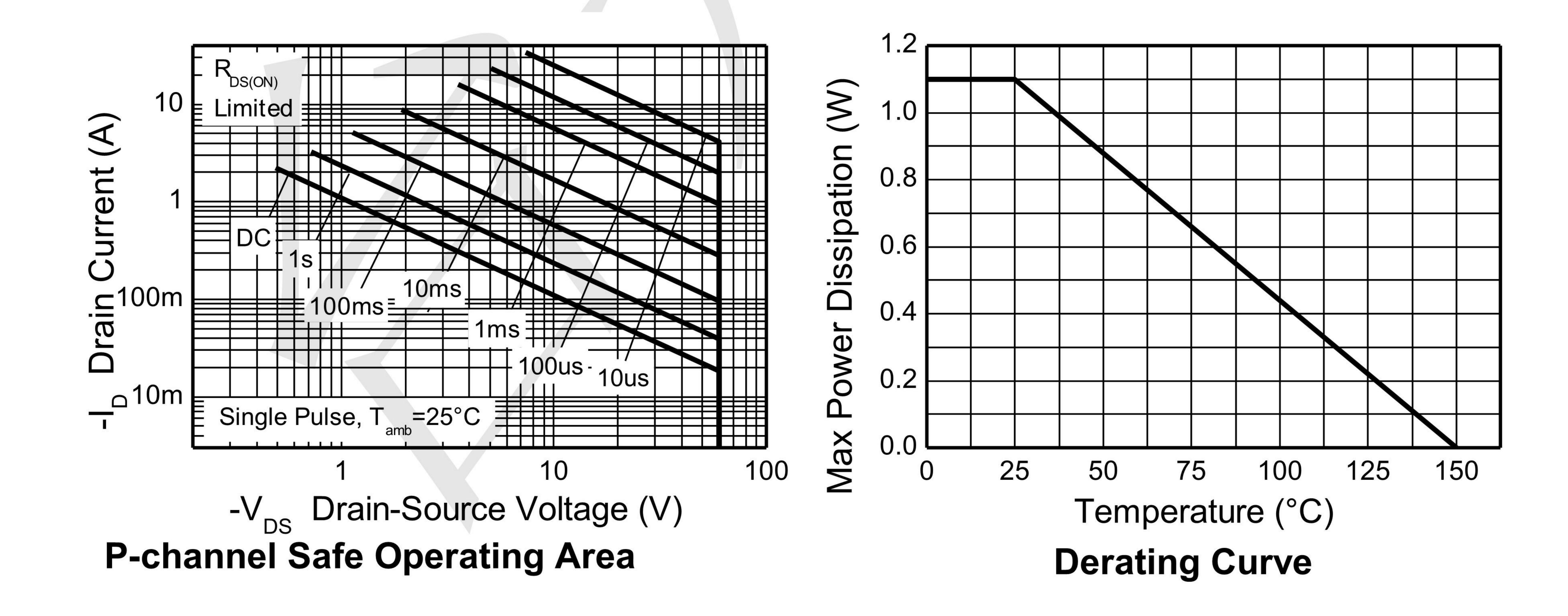
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Electrical Characteristics (T_A = 25°C unless otherwise noted)

Characteristic		Min	Тур	Max	Unit	Test Condition
OFF CHARACTERISTICS						
		~~				

Drain-Source Breakdown Voltage	BV _{DSS}	-60			V	$I_{D} = -250 \mu A, V_{GS} = 0V$	
Zero Gate Voltage Drain Current	IDSS			-1	μA	$V_{DS} = -48V, V_{GS} = 0V$	
Gate-Source Leakage	IGSS			±100	nA	V_{GS} = ±20V, V_{DS} = 0V	
ON CHARACTERISTICS							
Gate Threshold Voltage	VGS(th)	-1	-1.5	-3	V	$I_{D} = -250 \mu A, V_{DS} = V_{GS}$	
Static Drain-Source On-Resistance (Note 8)	D		95	118	mΩ	V_{GS} = -10V, I_{D} = -3A	
Static Drain-Source On-Resistance (Note 6)	Rds (ON)		130	190		$V_{GS} = -4.5V, I_{D} = -1.9A$	
Forward Transconductance (Notes 8 & 9)	g fs		4.7		S	$V_{DS} = -15V, I_{D} = -2.3A$	
Diode Forward Voltage (Note 8)	V _{SD}		-0.85	-0.95	V	$I_{S} = -2A, V_{GS} = 0V$	
Reverse Recovery Time (Note 9)	t _{rr}		25.1		ns	-I _F = -1.7A, di/dt = 100A/μs	
Reverse Recovery Charge (Note 9)	Qrr		27.2		nC		
DYNAMIC CHARACTERISTICS (Note 9)							
Input Capacitance	Ciss		637		pF	V _{DS} = -30V, V _{GS} = 0V f = 1MHz	
Output Capacitance	Coss		70		pF		
Reverse Transfer Capacitance	Crss		53		pF		
Total Gate Charge (Note 10)	Qg		9.8		nC	$V_{GS} = -5V$	
Total Gate Charge (Note 10)	Qg		17.7		nC	$V_{DS} = -30V$	
Gate-Source Charge (Note 10)	Qgs		1.6		nC	$V_{GS} = -10V$ $I_{D} = -2.3A$	
Gate-Drain Charge (Note 10)	Qgd		4.4		nC		
Turn-On Delay Time (Note 10)	t _{D(on)}		2.6		ns		
Turn-On Rise Time (Note 10)	tr		3.4		ns	$V_{DD} = -30V$, $V_{GS} = -10V$ $I_D = -1A$, $R_G \cong 6\Omega$	
Turn-Off Delay Time (Note 10)	t _{D(off)}		26.2		ns		
Turn-Off Fall Time (Note 10)	t _f		11.3		ns		

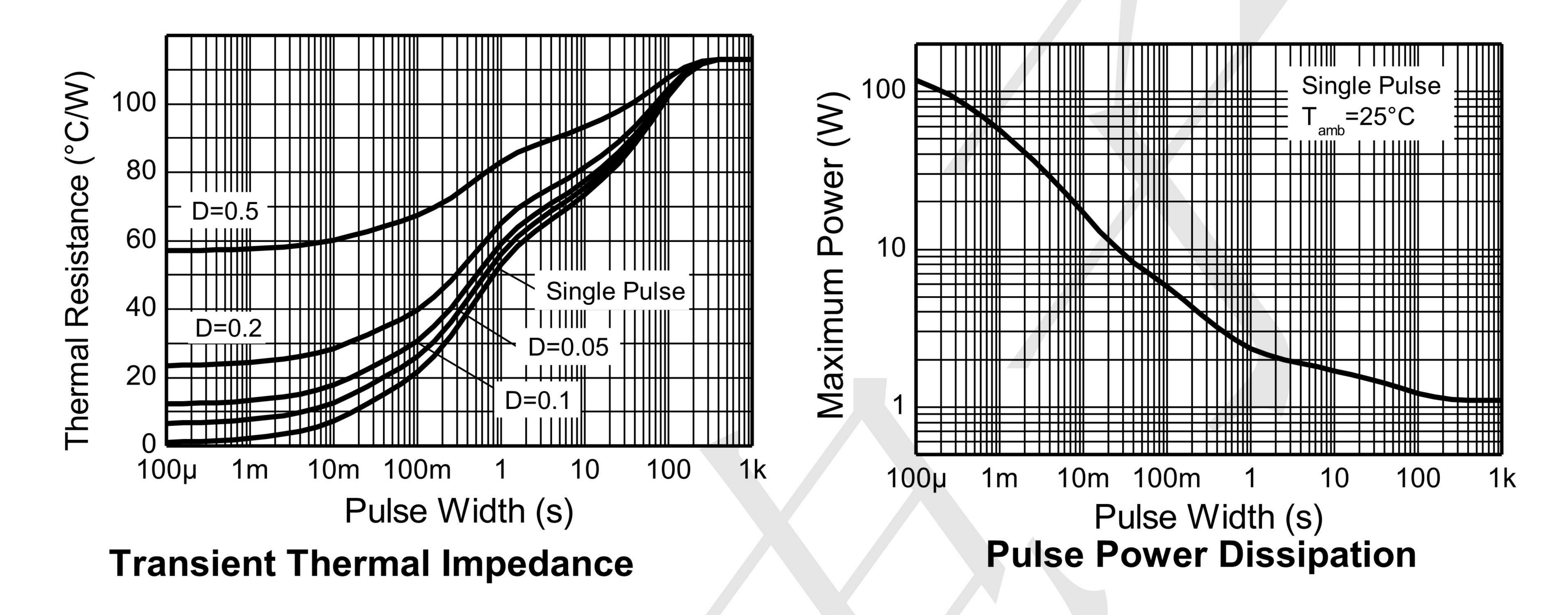
Typical Performance Characteristics (T_A=25°C unless otherwise Specified)

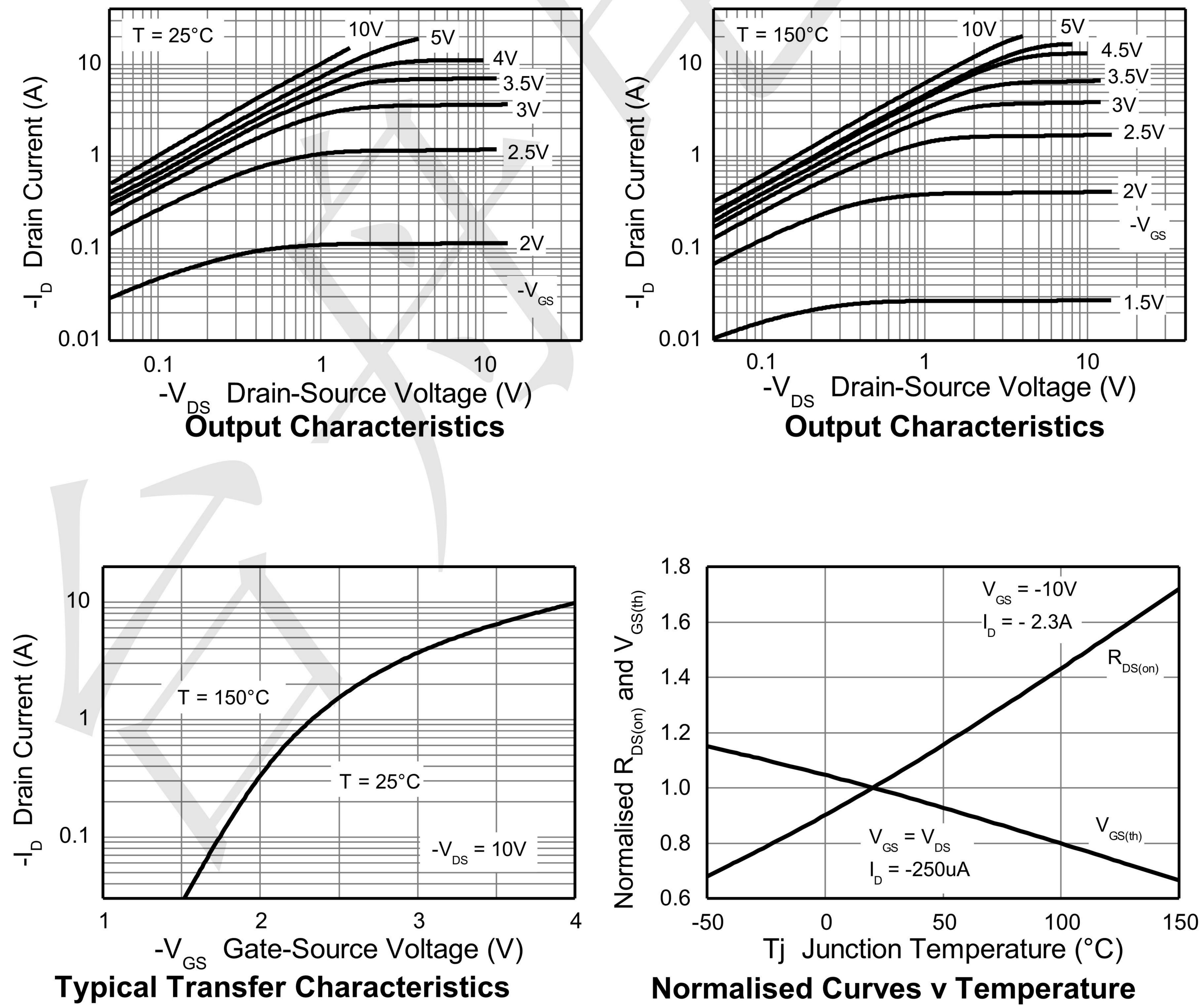


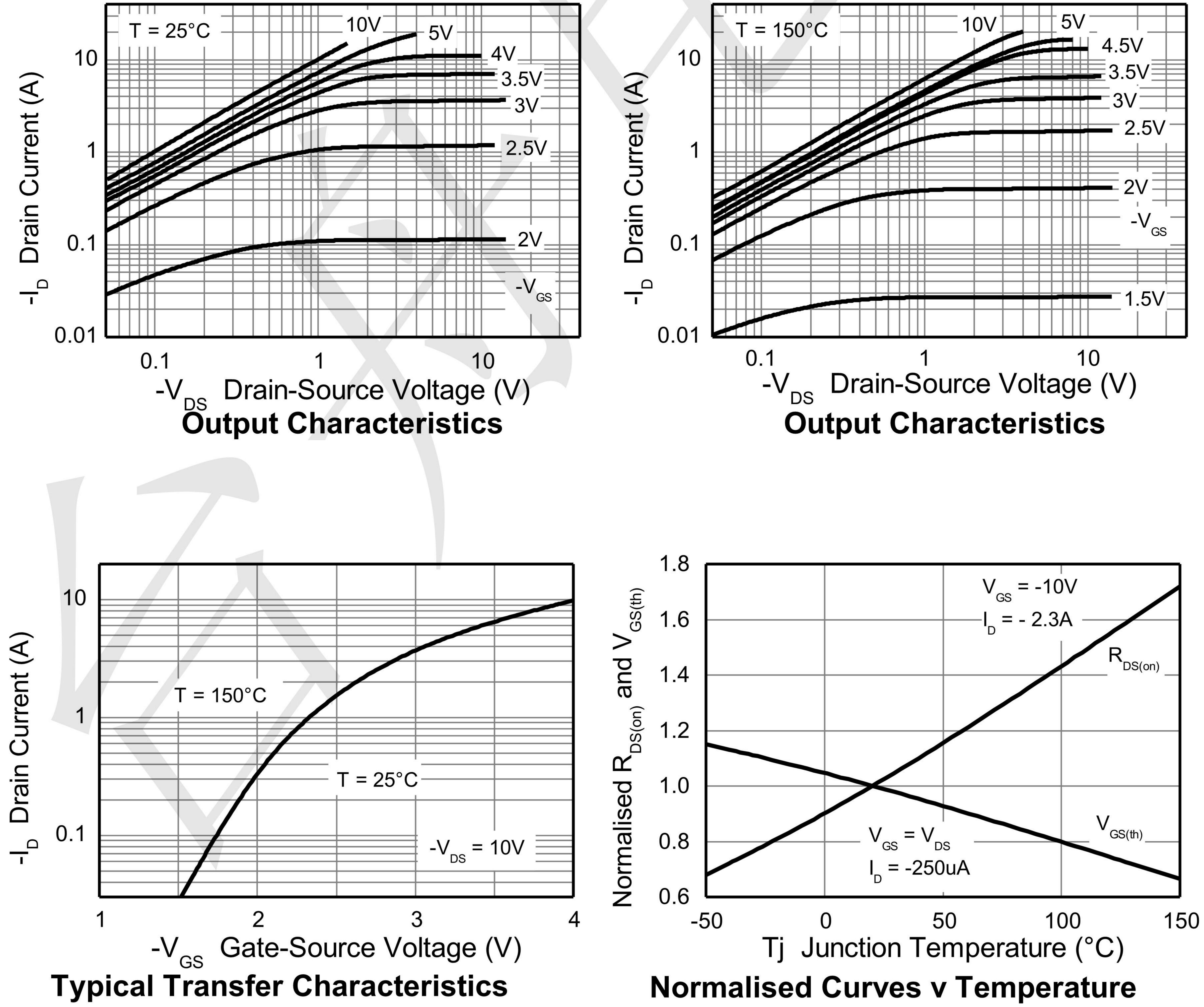


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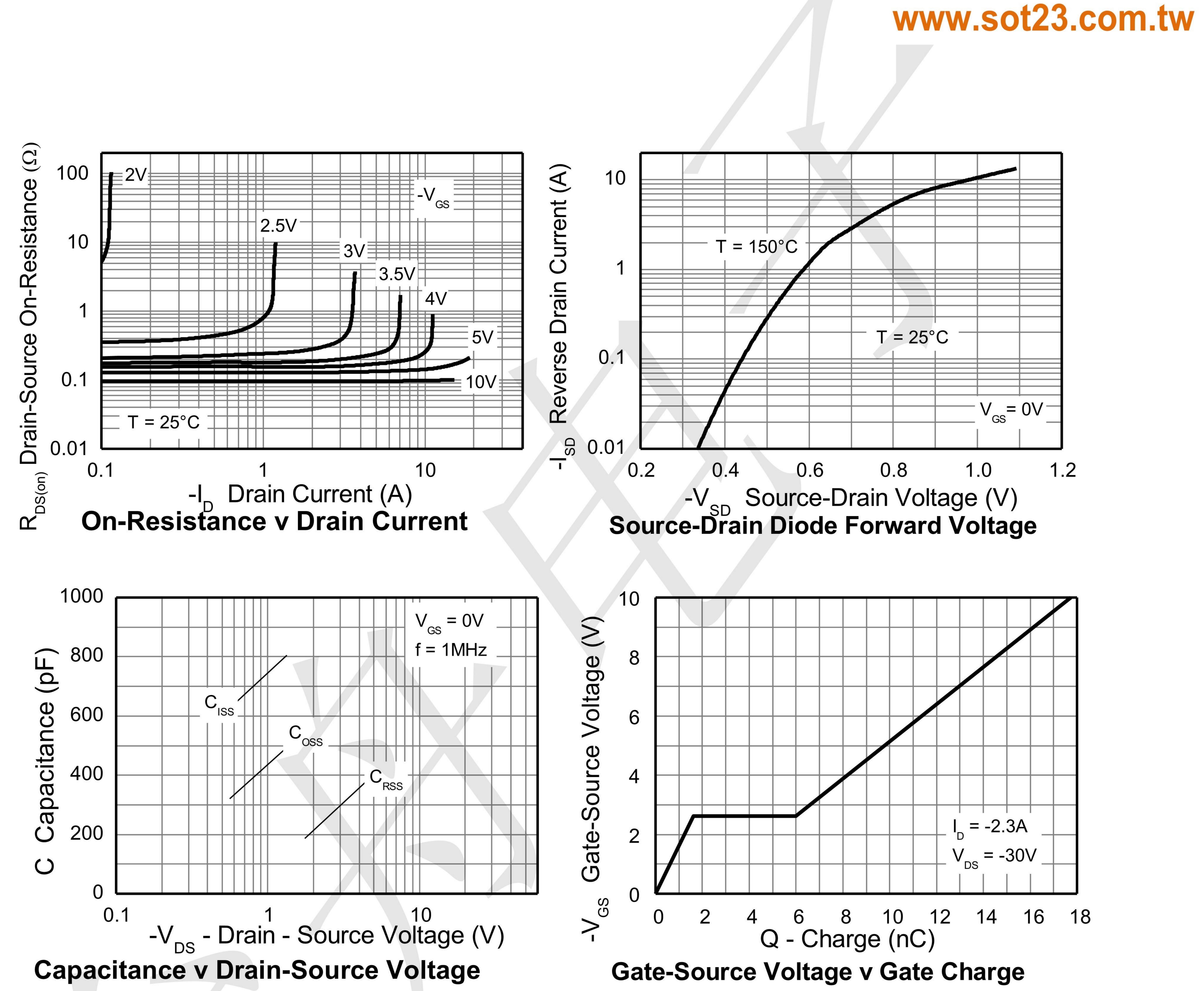








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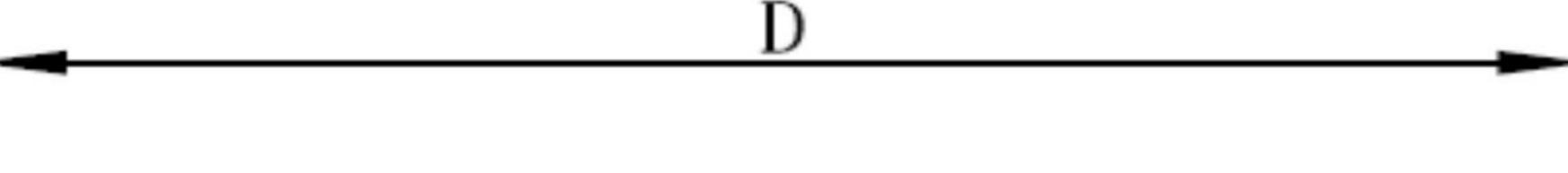


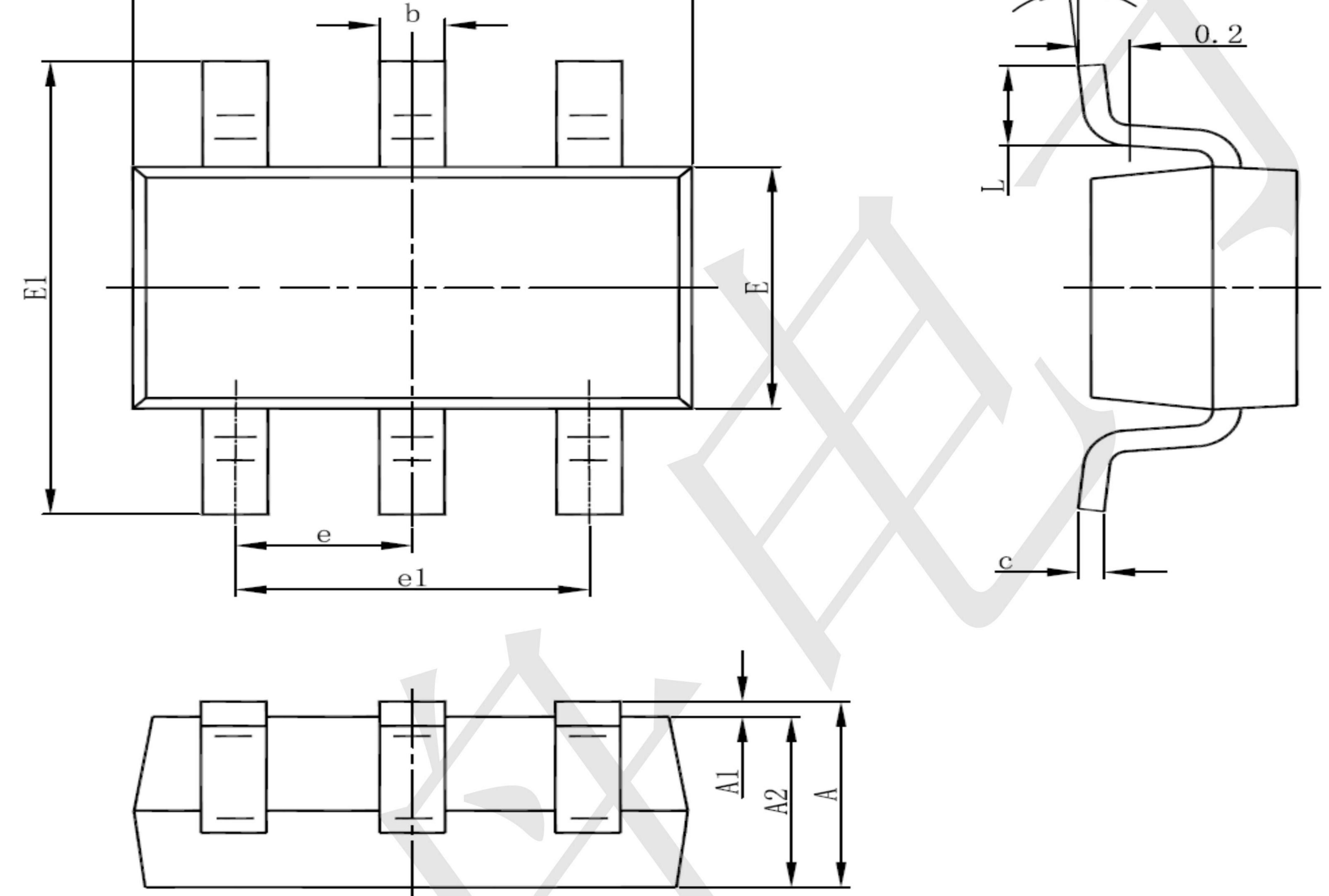


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SOT23-6 Package Information





C. mbal	Dimensions In Millimeters		Dimensions In Inches		
Symbol	Min	Max	Min	Max	
A	1.050	1.250	0.041	0.049	
A1	0.000	0.100	0.000	0.004	
A2	1.050	1.150	0.041	0.045	
b	0.300	0.500	0.012	0.020	
C	0.100	0.200	0.004	0.008	
D	2.820	3.020	0.111	0.119	
E	1.500	1.700	0.059	0.067	
E1	2.650	2.950	0.104	0.116	
e	0.950	(BSC)	0.037	(BSC)	
e1	1.800	2.000	0.071	0.079	
L	0.300	0.600	0.012	0.024	
θ	0°	8°	0°	8°	

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