

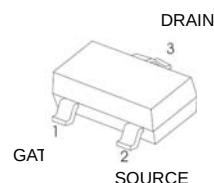
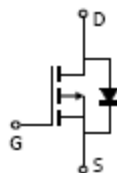
Plastic-Encapsulate MOSFETS

FEATURE

TrenchFET Power MOSFET

APPLICATIONS

- Load Switch for Portable Devices
- DC/DC Converter



MARKING: TP

SOT-523

Maximum ratings (T_a=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V _{DS}	-20	V
Gate-Source Voltage	V _{GS}	±8	
Continuous Drain Current	I _D	-2.0	A
Pulsed Drain Current	I _{DM}	-6	
Continuous Source-Drain Diode Current	I _S	-0.72	
Maximum Power Dissipation	P _D	0.25	W
Thermal Resistance from Junction to Ambient(t ≤5s)	R _{θJA}	357	°C/W
Junction Temperature	T _J	150	°C
Storage Temperature	T _{stg}	-55 ~+150	

Electrical characteristics (T_a=25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Units
Static						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = -250μA	-20			V
Gate-source threshold voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-0.4		-1	
Gate-source leakage	I _{GSS}	V _{DS} = 0V, V _{GS} = ±8V			±100	nA
Zero gate voltage drain current	I _{DSS}	V _{DS} = -20V, V _{GS} = 0V			-1	μA
Drain-source on-state resistance ^a	R _{DS(on)}	V _{GS} = -4.5V, I _D = -1.8A		0.125	0.140	Ω
		V _{GS} = -2.5V, I _D = -1.0A		0.135	0.180	
Forward transconductance ^a	g _{fs}	V _{DS} = -5V, I _D = -2.0A		6.5		S

Dynamic^b

Input capacitance	C_{iss}	$V_{DS} = -10V, V_{GS} = 0V, f = 1MHz$		405		pF
Output capacitance	C_{oss}			75		
Reverse transfer capacitance	C_{rss}			55		
Total gate charge	Q_g	$V_{DS} = -10V, V_{GS} = -4.5V, I_D = -3A$		5.5	10	nC
Gate-source charge	Q_{gs}	$V_{DS} = -10V, V_{GS} = -2.5V, I_D = -3A$		3.3	6	
Gate-drain charge	Q_{gd}			0.7		
				1.3		
Gate resistance	R_g	$f = 1MHz$		6.0		Ω
Turn-on delay time	$t_{d(on)}$	$V_{DD} = -10V,$ $R_L = 10\Omega, I_D = -1A,$ $V_{GEN} = -4.5V, R_g = 1\Omega$		11	20	ns
Rise time	t_r			35	60	
Turn-off delay time	$t_{d(off)}$			30	50	
Fall time	t_f			10	20	

Drain-source body diode characteristics

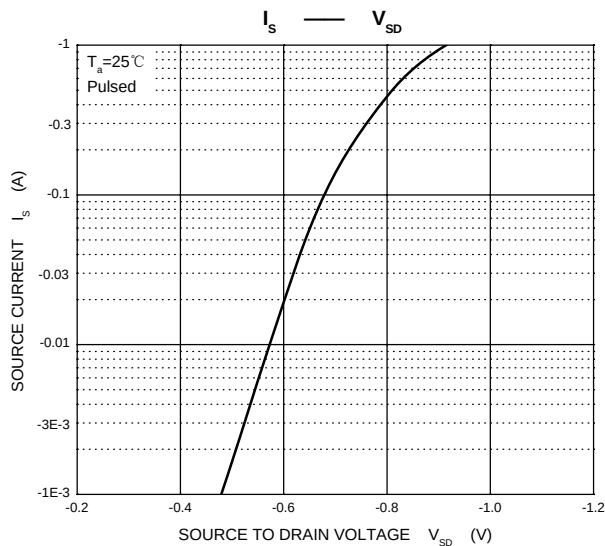
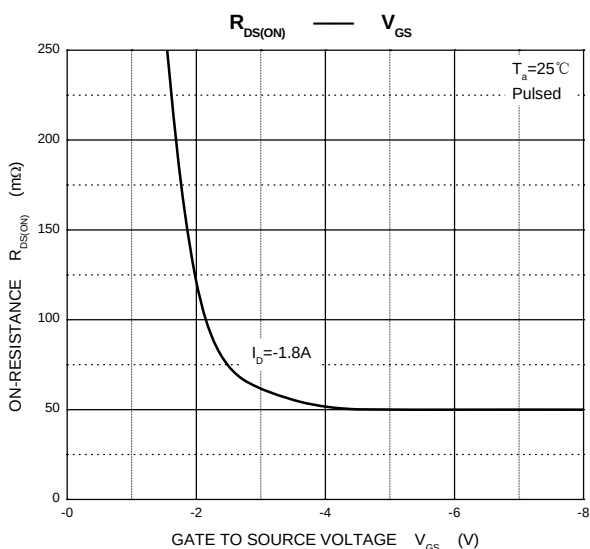
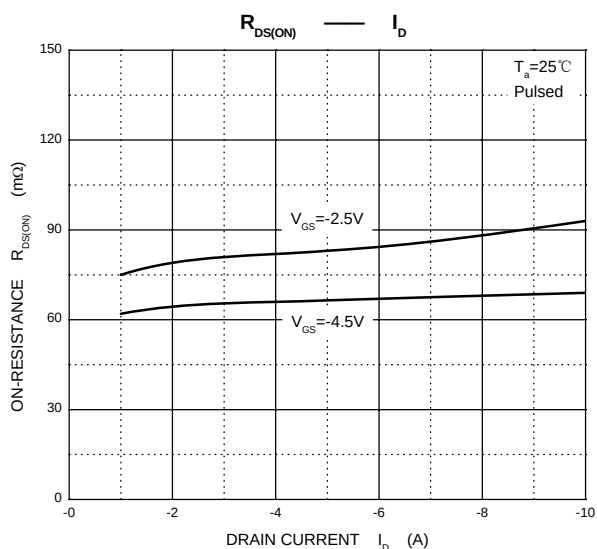
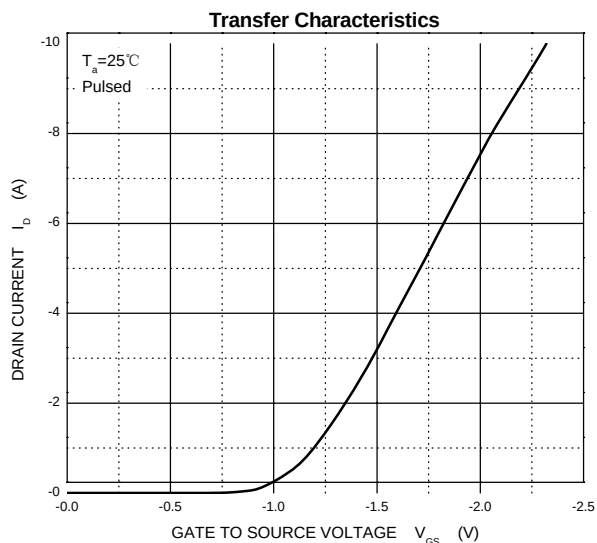
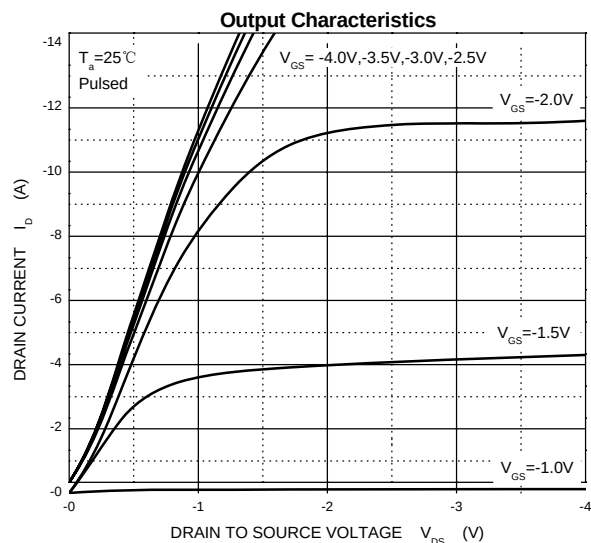
Continuous source-drain diode current	I_S	$T_C = 25^\circ C$			-1.3	A
Pulse diode forward current ^a	I_{SM}				-10	
Body diode voltage	V_{SD}	$I_S = -0.7A$		-0.8	-1.2	V

Notes :

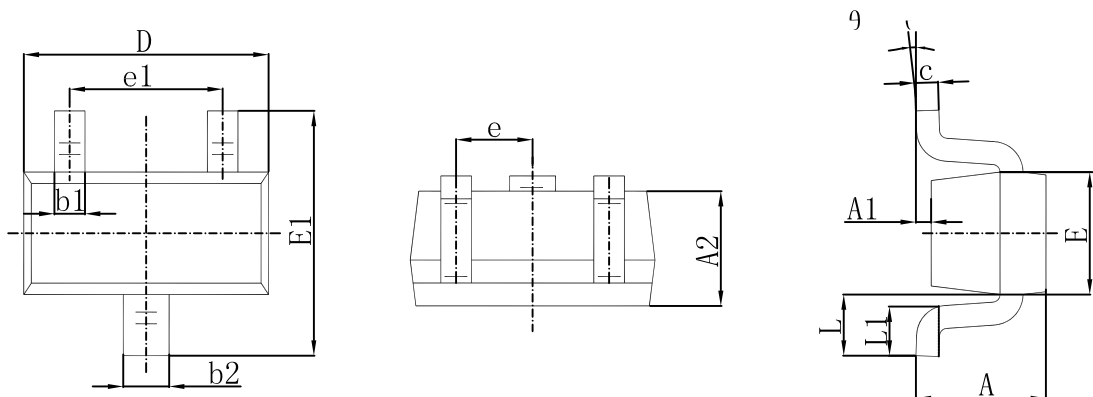
a.Pulse Test : Pulse Width < 300 μ s, Duty Cycle $\leq$ 2%.

b.Guaranteed by design, not subject to production testing.

Typical Characteristics

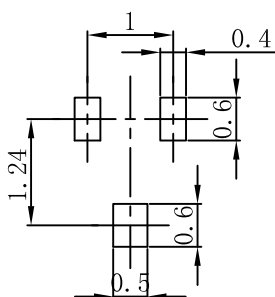


SOT-523 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700	0.900	0.028	0.035
A1	0.000	0.100	0.000	0.004
A2	0.700	0.800	0.028	0.031
b1	0.150	0.250	0.006	0.010
b2	0.250	0.350	0.010	0.014
c	0.100	0.200	0.004	0.008
D	1.500	1.700	0.059	0.067
E	0.700	0.900	0.028	0.035
E1	1.450	1.750	0.057	0.069
e	0.500 TYP.		0.020 TYP.	
e1	0.900	1.100	0.035	0.043
L	0.400 REF.		0.016 REF.	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°

SOT-523 Suggested Pad Layout



Note:

1. Controlling dimension: in millimeters.
2. General tolerance: $\pm 0.05\text{mm}$.
3. The pad layout is for reference purposes only.