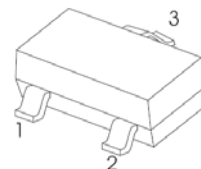


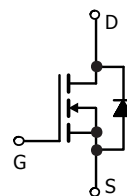
Features

- $V_{DS}(V) = 100V$
- $I_D = 0.17\text{ A}$ ($V_{GS} = 10V$)
- $R_{DS(ON)} < 6\Omega$ ($V_{GS} = 10V$)
- $R_{DS(ON)} < 10\Omega$ ($V_{GS} = 4.5V$)
- ESD Protected 2KV HBM

SOT - 23



1. BASE
2. EMITTER
3. COLLECTOR



Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

Parameter	Symbo	Rating	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	± 20	
Continuous Drain Current	I_D	0.17	A
Pulsed Drain Current	I_{DM}	0.68	
Power Dissipation	PD	0.36	W
Derate Above 25°C		2.8	mW/ $^\circ\text{C}$
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	350	$^\circ\text{C/W}$
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-55 to 150	

Electrical Characteristics Ta = 25 °C

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V _{DSS}	I _D =250 μA, V _{GS} =0V	100			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =100V, V _{GS} =0V			1	μA
		V _{DS} =100V, V _{GS} =0V, T _J =55°C			60	
Gate-Body Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±10	
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =1mA	0.8		2.8	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =10V, I _D =0.17A			6	Ω
		V _{GS} =10V, I _D =0.17A, T _J =125°C			12	
		V _{GS} =4.5V, I _D =0.17A			10	
On State Drain Current	I _{D(ON)}	V _{GS} =10V, V _{DS} =5V	0.68			A
Forward Transconductance	g _{FS}	V _{DS} =10V, I _D =0.17A	0.08			S
Input Capacitance	C _{iss}	V _{GS} =0V, V _{DS} =25V, f=1MHz		73		pF
Output Capacitance	C _{oss}			7		
Reverse Transfer Capacitance	C _{rss}			3.4		
Gate Resistance	R _g	V _{GS} =15mV, f=1MHz		2.2		Ω
Total Gate Charge	Q _g	V _{GS} =10V, V _{DS} =30V, I _D =0.22A		1.8	2.5	nC
Gate Source Charge	Q _{gs}			0.2		
Gate Drain Charge	Q _{gd}			0.3		
Turn-On DelayTime	t _{d(on)}	V _{DD} = 30 V, I _D = 0.28 A, V _{GS} = 10 V, R _{GEN} = 6 Ω		1.7	3.4	ns
Turn-On Rise Time	t _r			9	18	
Turn-Off DelayTime	t _{d(off)}			17	31	
Turn-Off Fall Time	t _f			2.4	5	
Body Diode Reverse Recovery Time	t _{rr}	I _F = 0.17A, di/dt = 100A/μs		11		nC
Body Diode Reverse Recovery Charge	Q _{rr}			3		
Maximum Body-Diode Continuous Current	I _S				0.17	A
Diode Forward Voltage	V _{SD}	I _S =0.34A, V _{GS} =0V			1.3	V

Note.: Pulse Test: Pulse Width ≤ 300 us, Duty Cycle ≤ 2.0%

Typical Characteristics

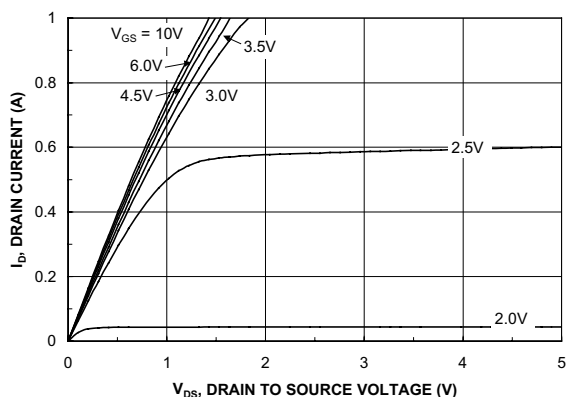


Figure 1. On-Region Characteristics.

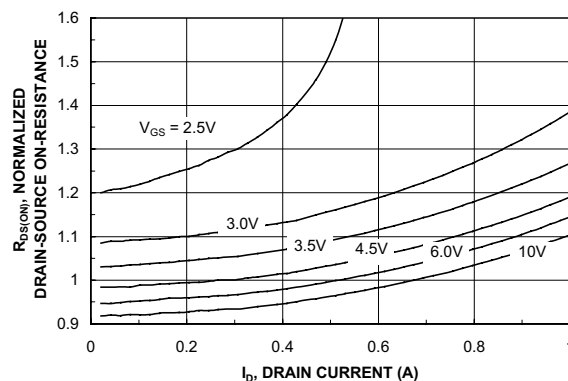


Figure 2. On-Resistance Variation with Drain Current and Gate Voltage.

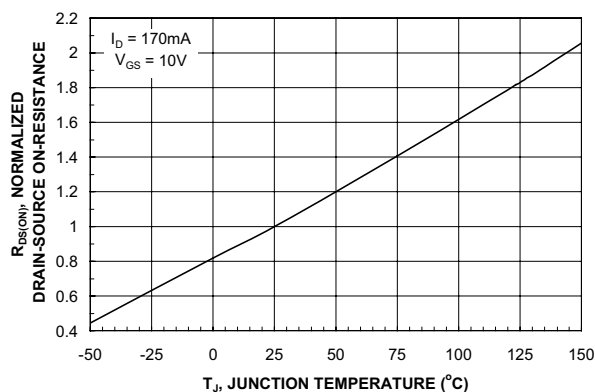


Figure 3. On-Resistance Variation with Temperature.

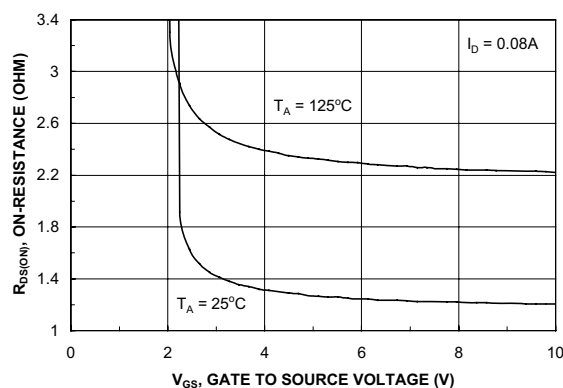


Figure 4. On-Resistance Variation with Gate-to-Source Voltage.

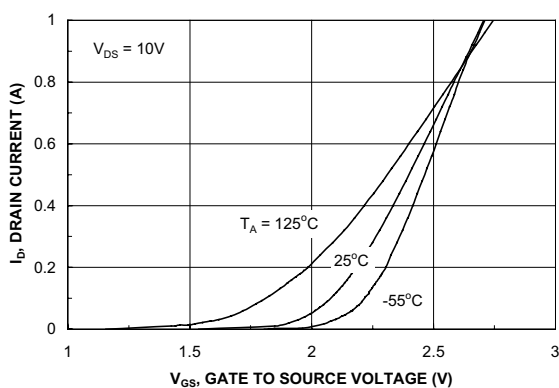


Figure 5. Transfer Characteristics.

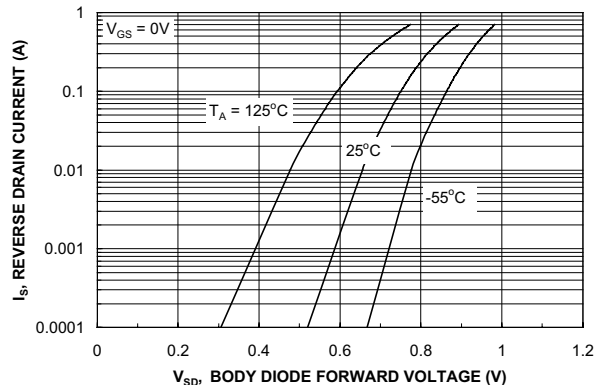


Figure 6. Body Diode Forward Voltage Variation with Source Current and Temperature.

Typical Characteristics

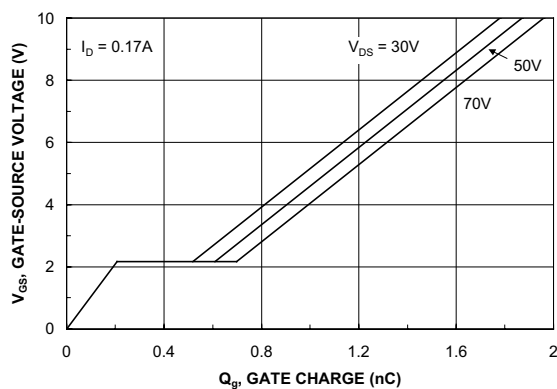


Figure 7. Gate Charge Characteristics.

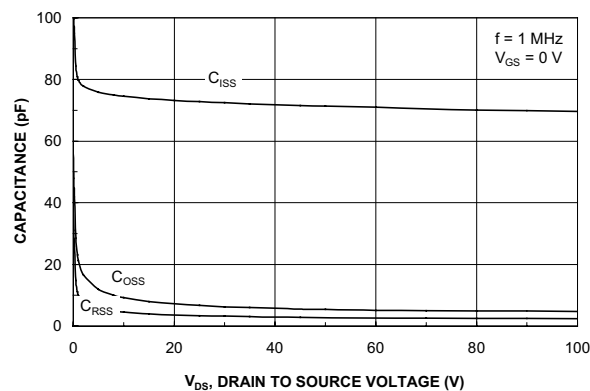


Figure 8. Capacitance Characteristics.

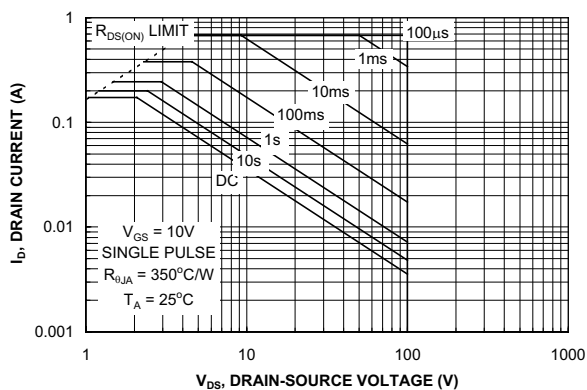


Figure 9. Maximum Safe Operating Area.

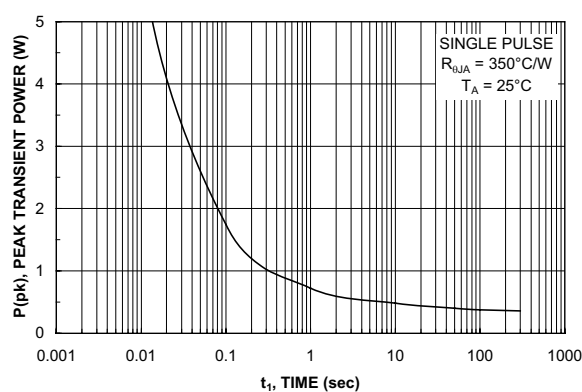
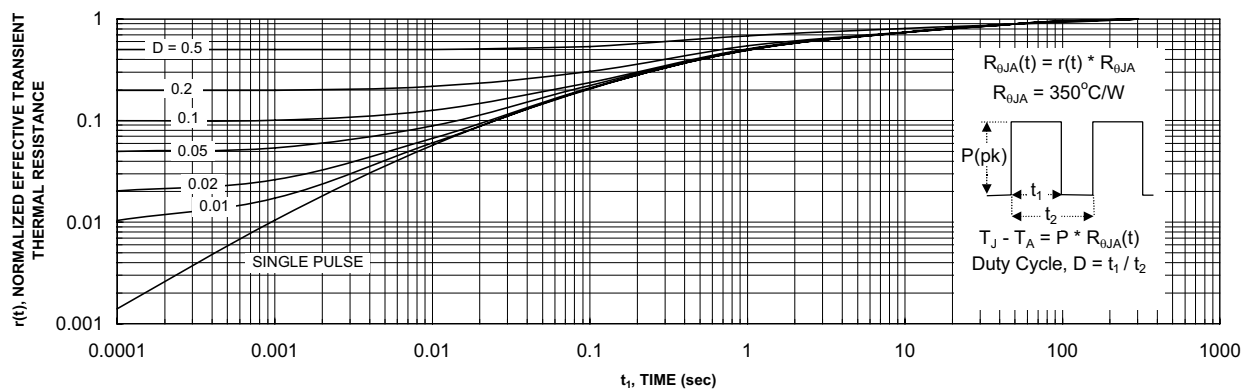
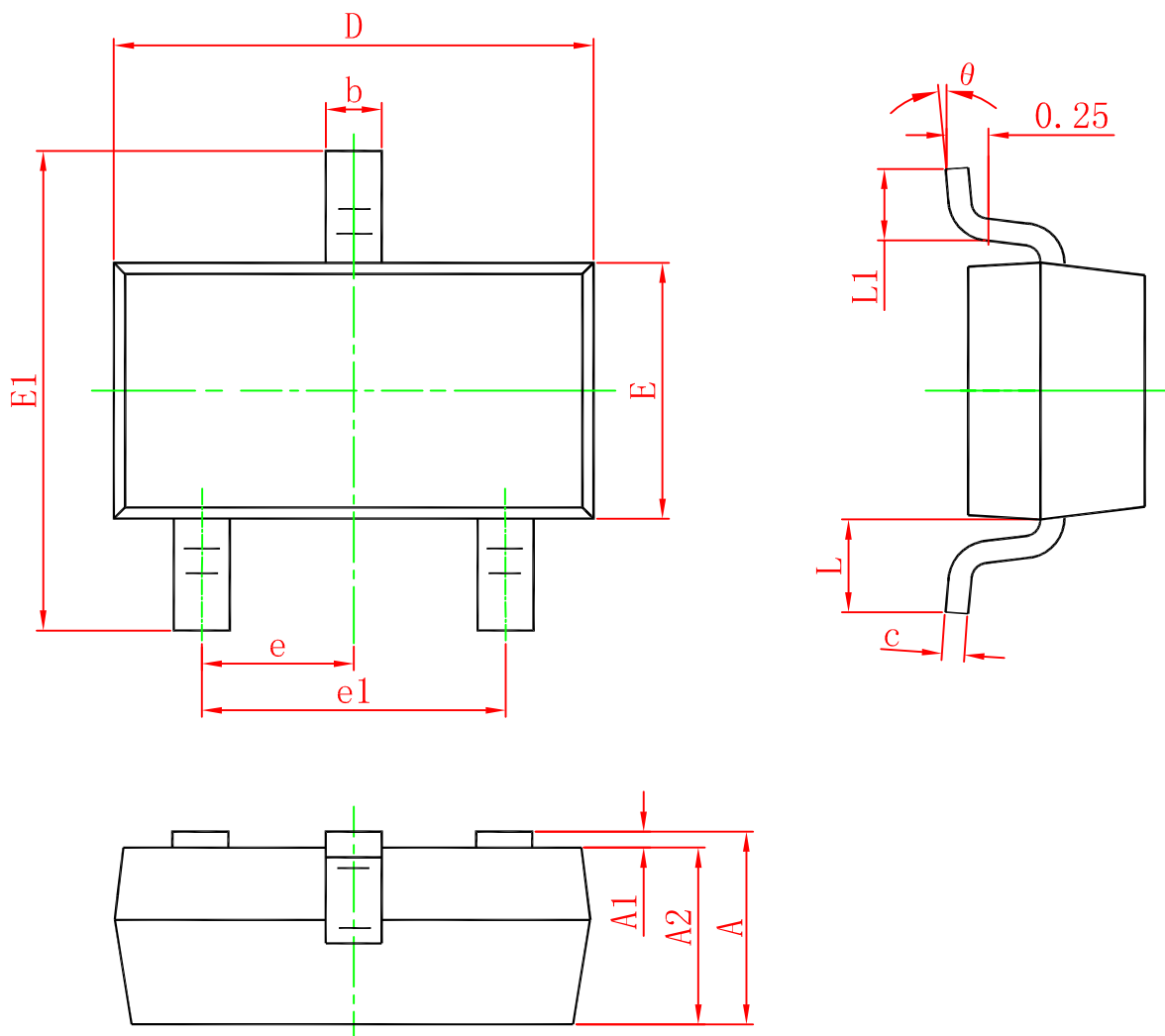


Figure 10. Single Pulse Maximum Power Dissipation.

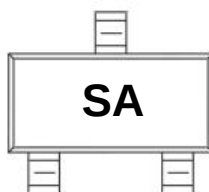


SOT-23 PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP.		0.037 TYP.	
e1	1.800	2.000	0.071	0.079
L	0.550 REF.		0.022 REF.	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

Marking



Ordering information

Order code	Package	Baseqty	Deliverymode
UMW BSS123	SOT-23	3000	Tape and reel