



General Description

The UV208T uses the Trench technology and design to provide excellent $R_{DS(ON)}$ with low gate charge.

This device is suitable for use in PWM, load switching and general purpose applications.

Features

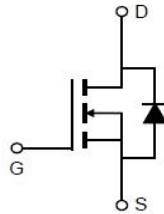
Enhancement Mode

Enhanced Body diode dv/dt capability

100% Avalanche Tested



SOT23-3 Top view



Schematic diagram

Pin 1: Gate 2: Source
3: Drain

V_{DS}	20	V
$R_{DS(on) TYP@V_{GS}=4.5V}$	9.4	m Ω
$R_{DS(on) TYP@V_{GS}=2.5V}$	11	m Ω
I_D	8.2	A

Applications

Power switching application

Hard Switched and High Frequency Circuits

Uninterruptible Power Supply

Package Marking And Ordering Information

Part ID	Package Type	Marking	Tape and Reel information
UV208T	SOT23-3		3000pcs/Reel

Maximum ratings, at $T_J=25^{\circ}C$, unless otherwise specified

Symbol	Parameter		Rating	Unit
$V_{(BR)DSS}$	Drain –Source breakdown voltage		20	V
I_D	Continuous drain current	$T_c=25^{\circ}C$	8.2	A
I_{DM}	Pulse drain current tested①	$T_c=25^{\circ}C$	22	A
P_D	Maximum power dissipation	$T_c=25^{\circ}C$	1.25	W
V_{GS}	Gate-Source voltage		± 12	V
$T_{STG} T_J$	Storage and operating temperature range		-55 to 175	$^{\circ}C$



Thermal Characteristic

Symbol	Parameter	Typical	Unit
R_{QJA}	Thermal Resistance-Junction to Ambient	100	$^{\circ}\text{C}/\text{W}$

Typical Characteristics

Symbol	Parameter	Condition	Min	Type	Max	Unit
Static Electrical Characteristics @T _j =25 °C (unless otherwise stated)						
V _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V I _D =250μA	20			V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =20V, V _{GS} =0V			1	μA
I _{GSS}	Gate-Body Leakage Current	V _{GS} =±12V,V _{DS} =0V			±7	μA
V _{GS(TH)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250μA	0.5		0.9	V
R _{DS(ON)}	Drain-Source On-State Resistance③	V _{GS} =4.5V,I _D =6A		9.4	12	mΩ
		V _{GS} =2.5V,I _D =4A		11	15	mΩ
Dynamic Electrical Characteristics @T _j =25 °C (unless otherwise stated)						
C _{iss}	Input Capacitance	V _{DS} =10V, V _{GS} =0V, F=1MHz		1150		PF
C _{oss}	Output Capacitance			188		PF
C _{rss}	Reverse Transfer Capacitance			167		PF
Q _g	Total Gate Charge(4.5V)	V _{DS} =10V, I _D =3A, V _{GS} =4.5V		12		nC
Q _{gs}	Gate-Source Charge			1.3		nC
Q _{gd}	Gate-Drain Charge			18		nC
Switching Characteristics						
t _{d(on)}	Turn-on Delay time	V _{DD} =10V I _D =1A R _G =6Ω R _L =5Ω V _{GS} =4.5V		13		nS
t _r	Turn-on Rise time			3.3		nS
t _{d(off)}	Turn-off Delay time			29.3		nS
t _f	Turn-off Fall time			3.4		nS
Source-Drain Diode Characteristics						
V _{SD}	Forward on voltage	I _{SD} =1.25A, V _{GS} =0V			1	V

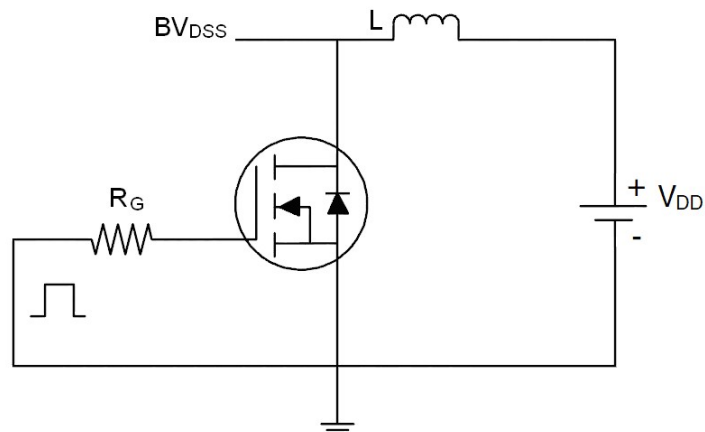
Note:

- ① Repetitive rating; pulse width limited by max, junction temperature.
- ② Limited by T_jmax, starting T_j=25 $^{\circ}\text{C}$, L=0.1mH, R_G=6 Ω , I_{AS}=1A, V_{GS}=10V, Part not recommended for use above this value
- ③ Pulse width $\leq 300\mu\text{s}$; duty cycle $\leq 2\%$
- ④ Package limitation current is 100A

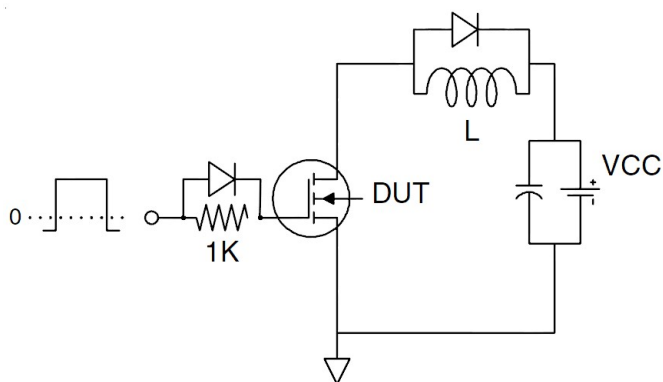


Test circuit

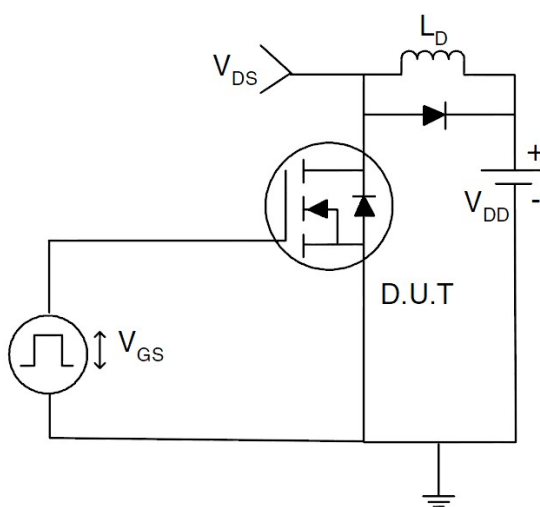
(1) E_{AS} test circuits



(2) Gate charge test circuit

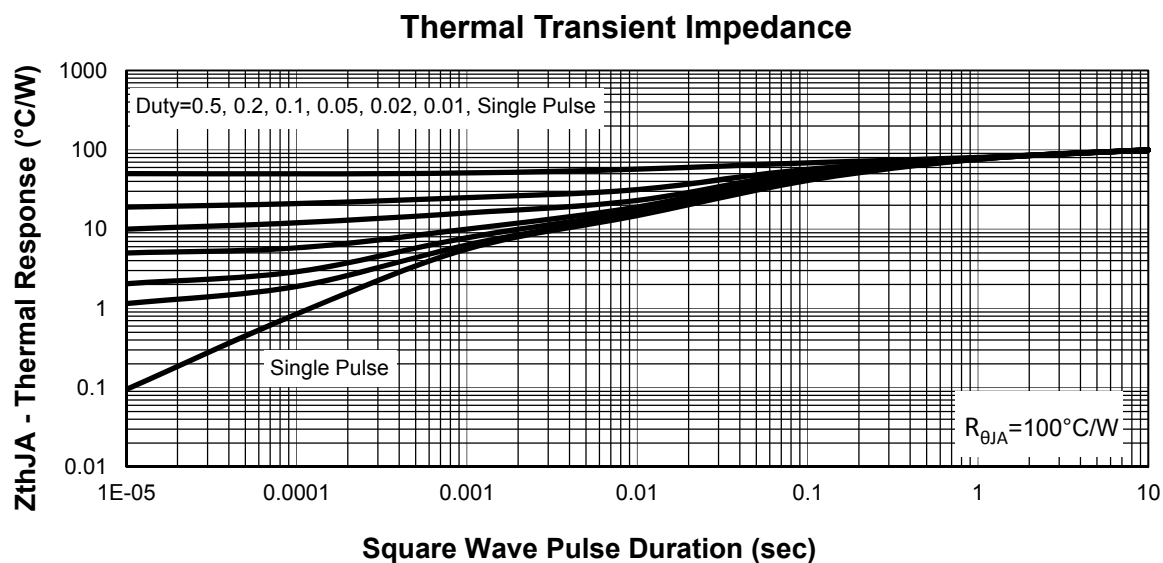
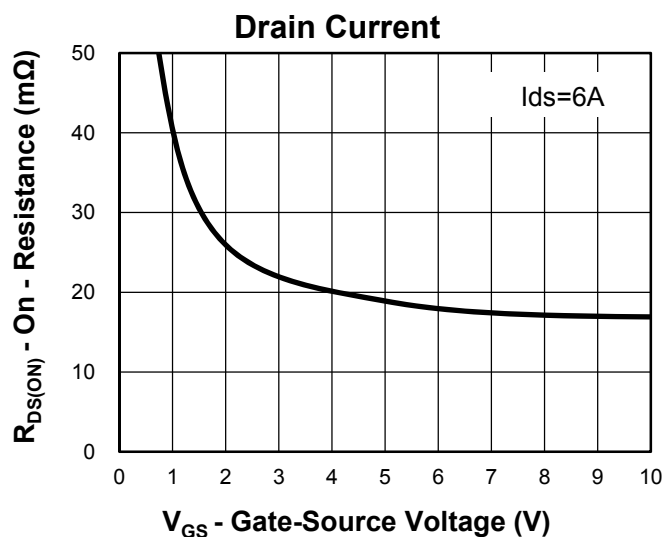
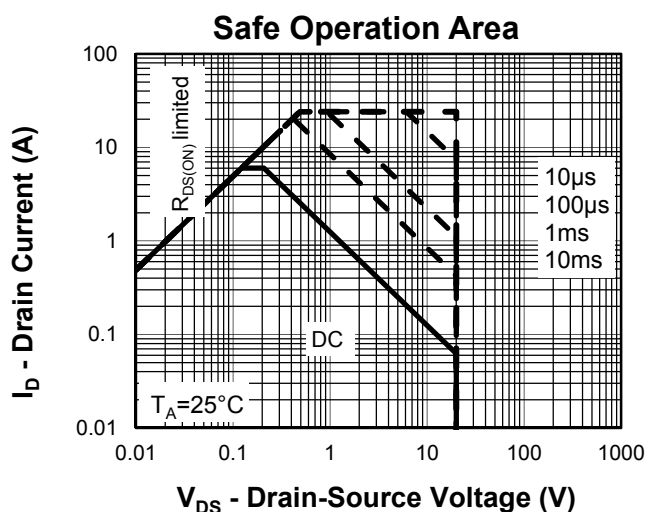
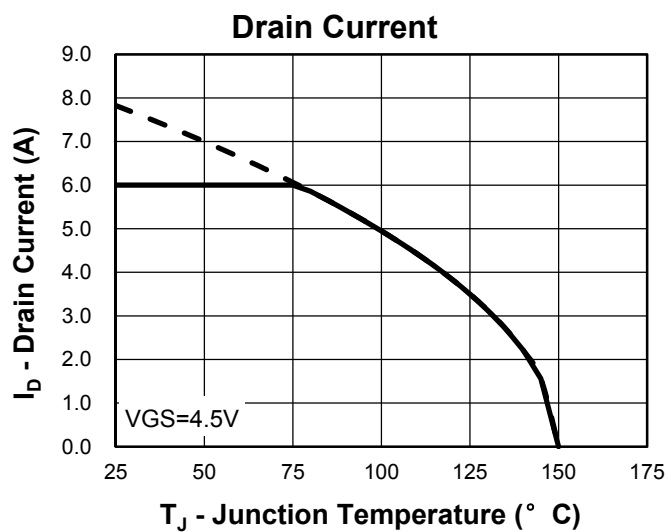
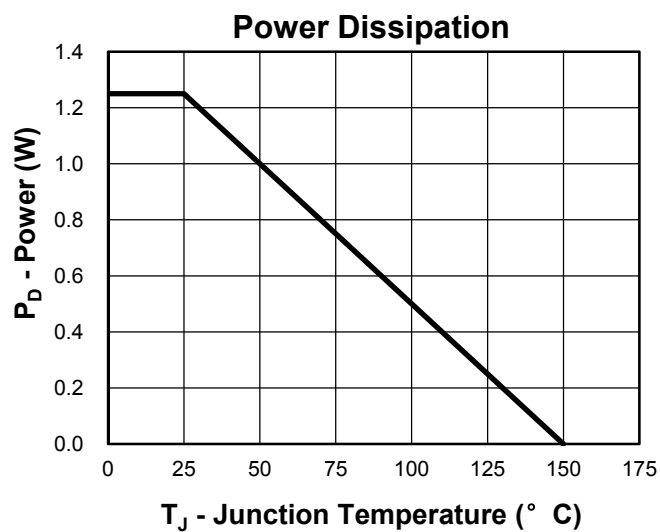


(3) Switch time test circuit



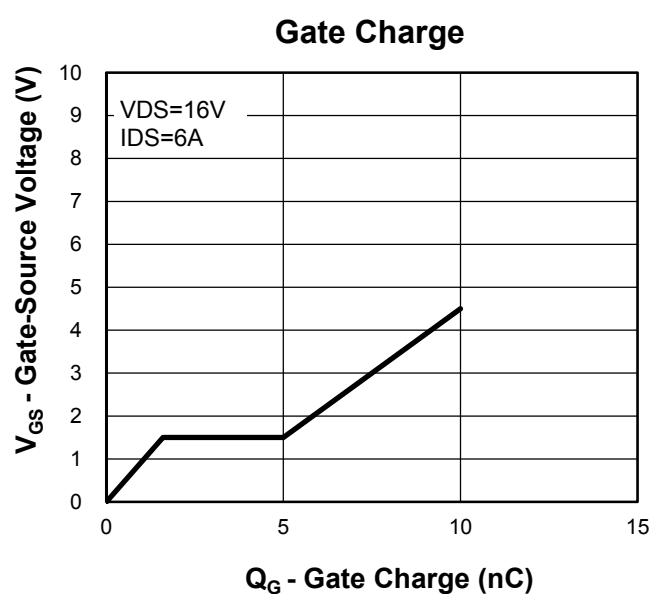
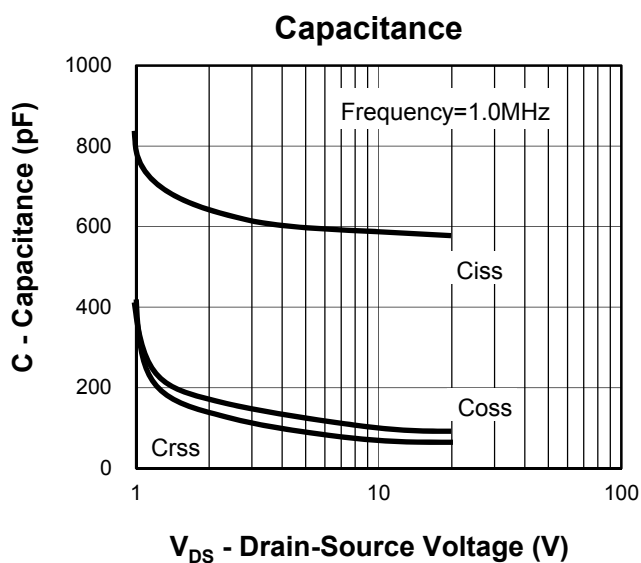
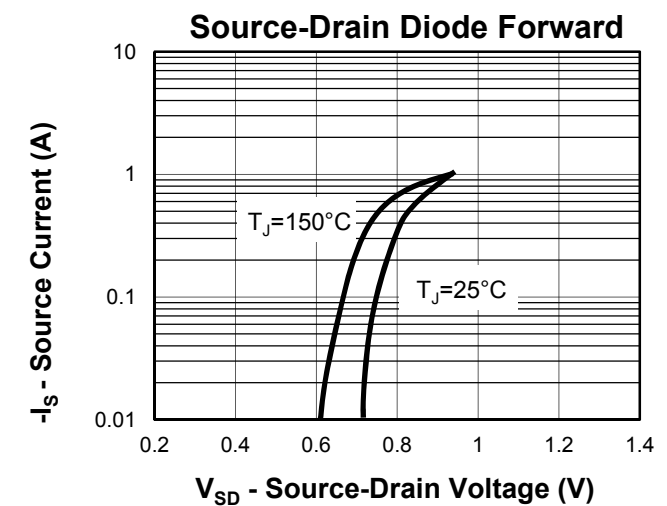
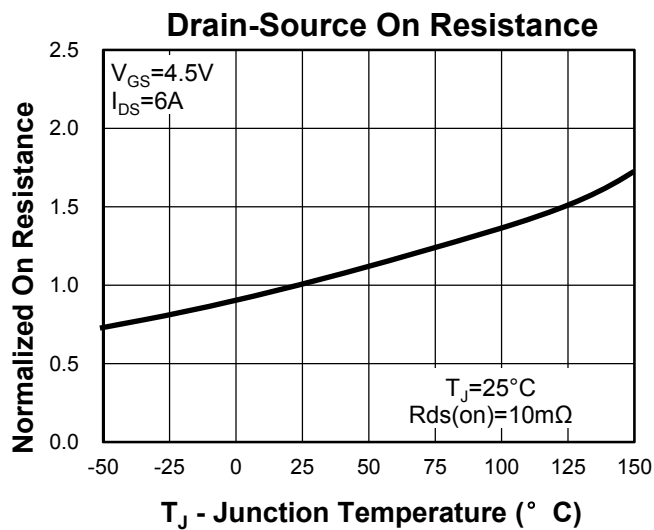
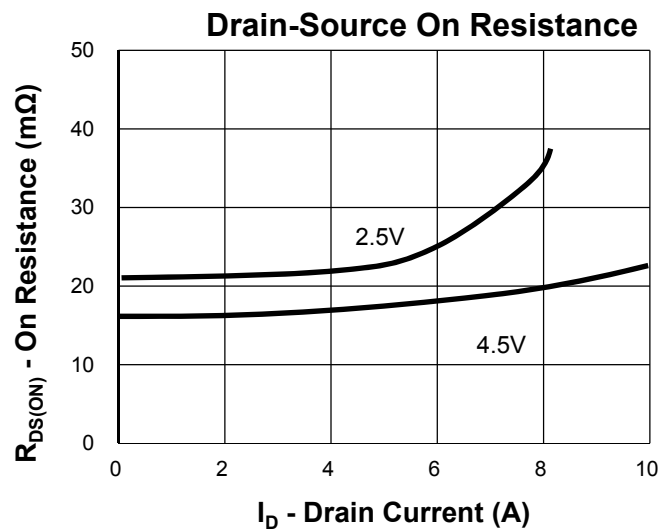
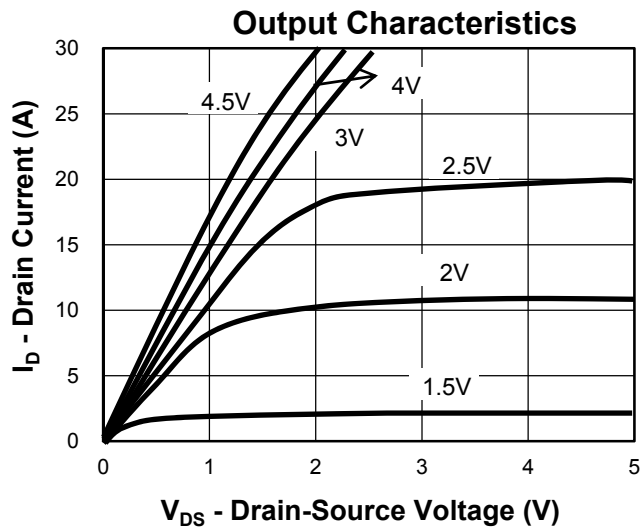


Typical Characteristics





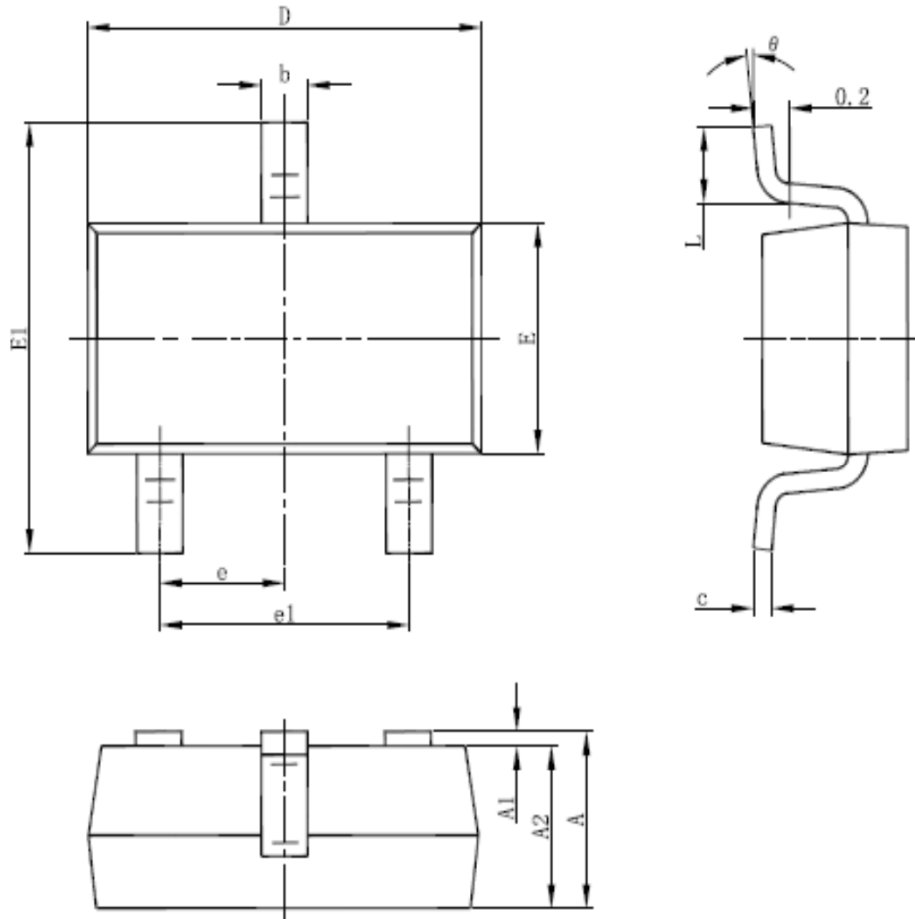
Typical Characteristics





Package Information

SOT23-3



SYMBOL	MM			INCH		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.950	1.150	1.450	0.037	0.045	0.057
A1	0.000	*	0.150	0.000	*	0.006
A2	0.900	1.100	1.300	0.035	0.043	0.051
b	0.300	0.400	0.500	0.012	0.016	0.020
c	0.080	0.150	0.200	0.003	0.006	0.008
D	2.800	2.925	3.050	0.110	0.115	0.120
E	1.500	1.600	1.750	0.059	0.063	0.069
E1	2.650	2.800	3.000	0.104	0.110	0.118
e	0.950 BSC			0.037 BSC		
e1	1.800	1.900	2.000	0.071	0.075	0.079
L	0.300	0.450	0.600	0.012	0.018	0.024
θ	0°	4°	8°	0°	4°	8°