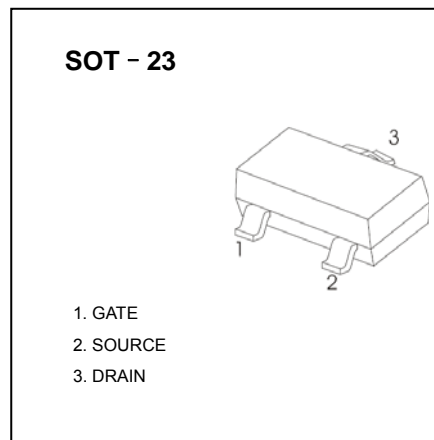
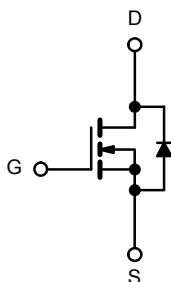


■ Features

- $V_{DS} (V) = 40V$
- $I_D = 5.6 A (V_{GS} = 10V)$
- $R_{DS(ON)} < 36 m\Omega (V_{GS} = 10V)$
- $R_{DS(ON)} < 46 m\Omega (V_{GS} = 4.5V)$



Equivalent Circuit



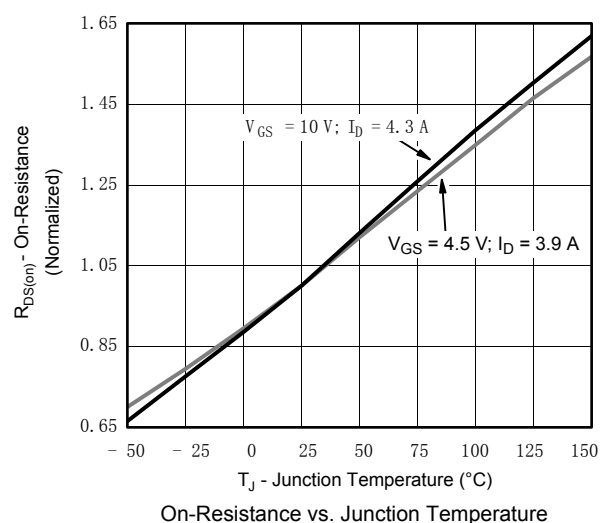
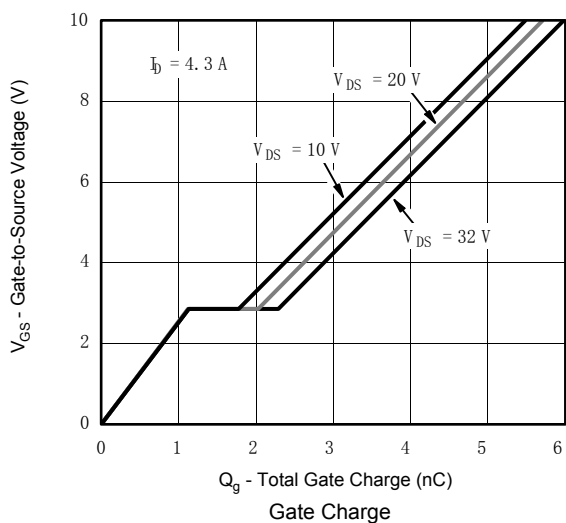
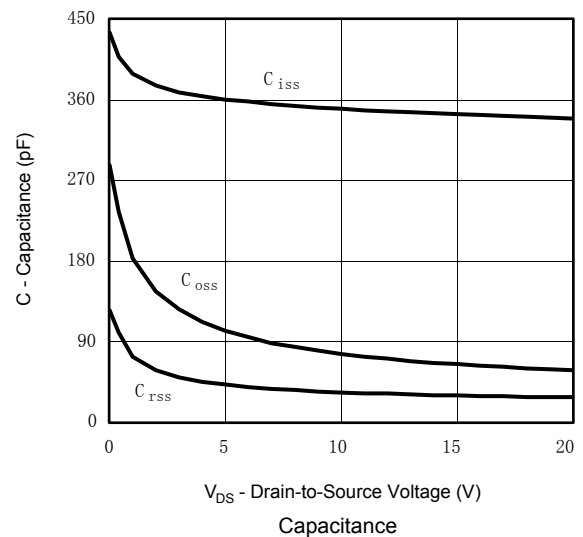
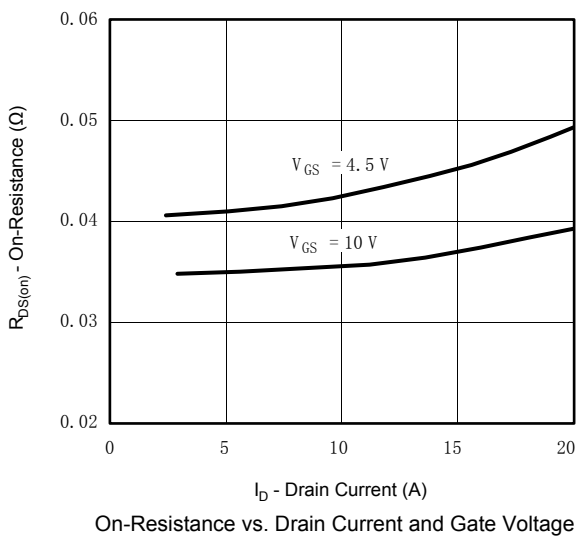
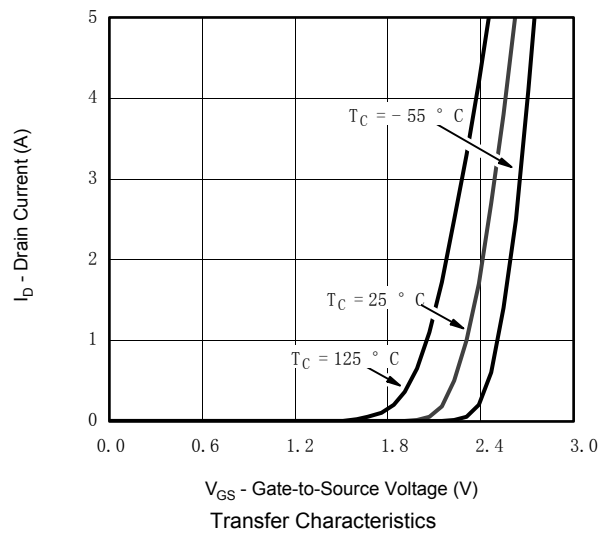
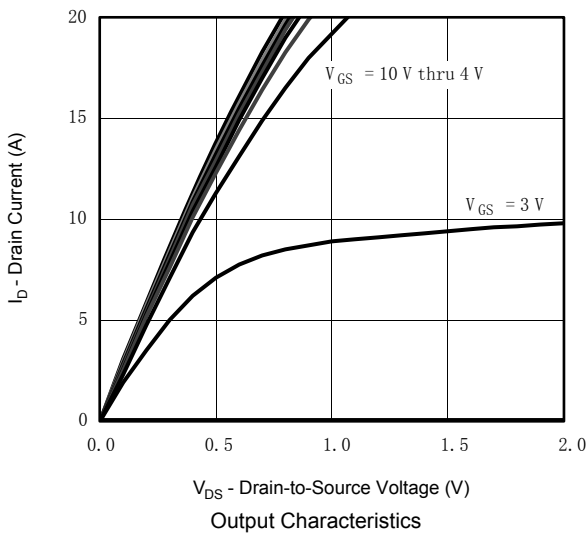
■ Absolute Maximum Ratings $T_a = 25^\circ C$

Parameter	Symbol	Rating	Unit	
Drain-Source Voltage	V_{DS}	40	V	
Gate-Source Voltage	V_{GS}	± 20		
Continuous Drain Current	I_D	$T_c=25^\circ C$	5.6	A
		$T_c=70^\circ C$	4.5	
		$T_a=25^\circ C$	4.3	
		$T_a=70^\circ C$	3.5	
Pulsed Drain Current	I_{DM}	20		
Power Dissipation	P_D	$T_c=25^\circ C$	2.1	W
		$T_c=70^\circ C$	1.3	
		$T_a=25^\circ C$	1.25	
		$T_a=70^\circ C$	0.8	
Thermal Resistance.Junction- to-Ambient	R_{thJA}	100	$^\circ C/W$	
Thermal Resistance.Junction- to-Foot	R_{thJF}	60		
Junction Temperature	T_J	150	$^\circ C$	
Storage Temperature Range	T_{stg}	-55 to 150		

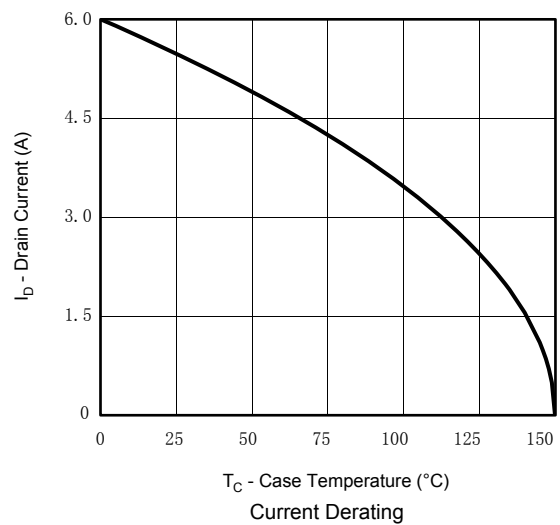
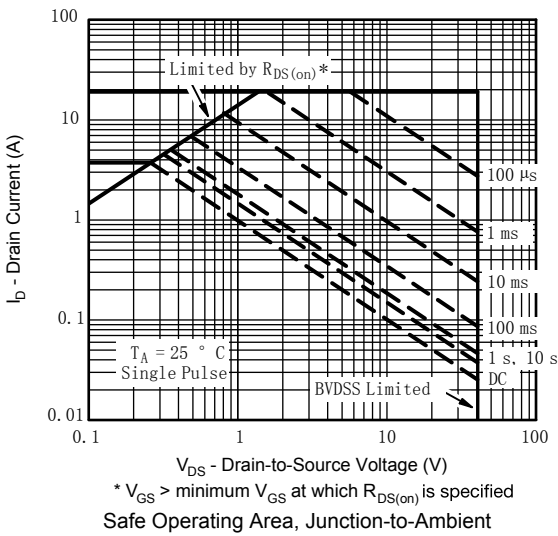
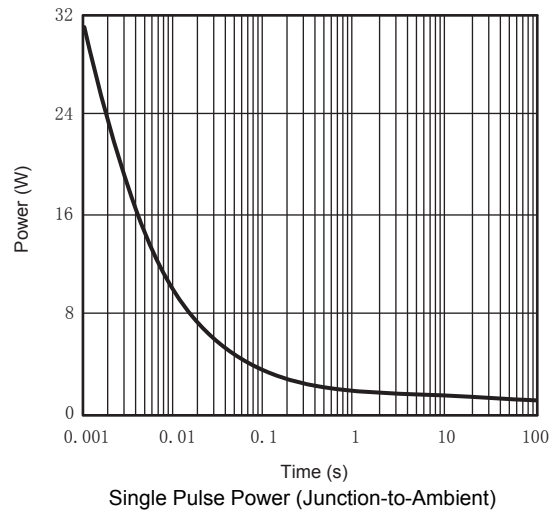
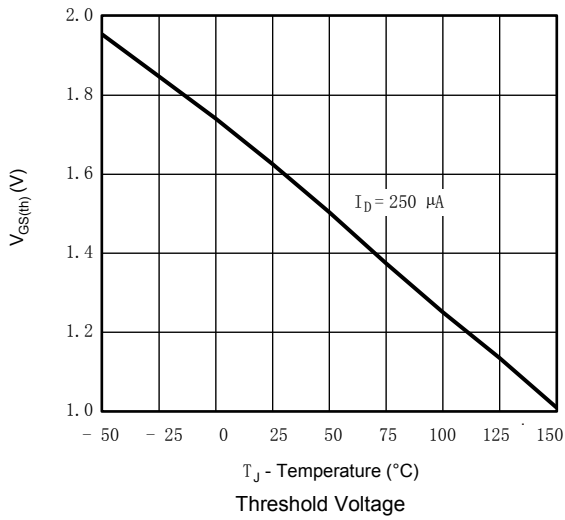
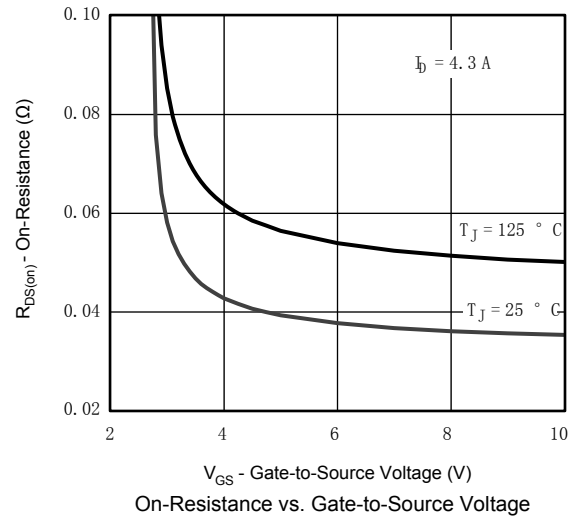
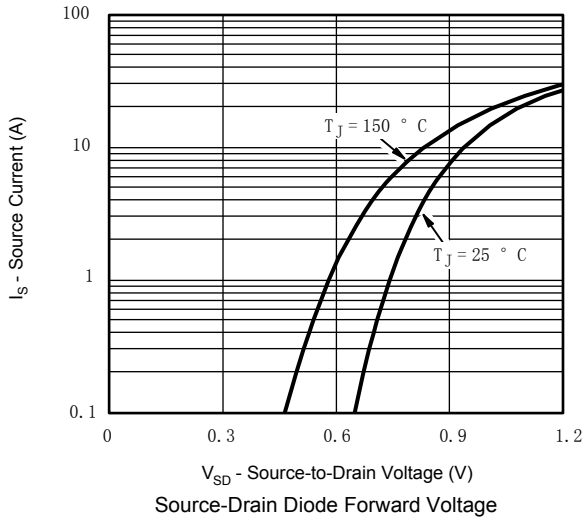
■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit	
Drain-Source Breakdown Voltage	V _{DSS}	I _D =250 μA, V _{GS} =0V	40			V	
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =40V, V _{GS} =0V			1	μA	
		V _{DS} =40V, V _{GS} =0V, T _J =70°C			10		
Gate-Body Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±100	nA	
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1.2		2.5	V	
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =10V, I _D =4.7A			36	mΩ	
		V _{GS} =4.5V, I _D =3.9A			46		
On State Drain Current	I _{D(ON)}	V _{DS} ≥5V, V _{GS} =10V	20			A	
Forward Transconductance	g _{FS}	V _{DS} =20V, I _D =4.3A		17		S	
Input Capacitance	C _{iss}	V _{GS} =0V, V _{DS} =20V, f=1MHz		340		pF	
Output Capacitance	C _{oss}			60			
Reverse Transfer Capacitance	C _{rss}			30			
Gate Resistance	R _g	V _{GS} =0V, V _{DS} =0V, f=1MHz	0.6		6.6	Ω	
Total Gate Charge	Q _g	V _{GS} =20V, V _{DS} =10V, I _D =4.3A		5.8	9	nC	
		V _{GS} =20V, V _{DS} =4.5V, I _D =4.3A		2.9	6		
Gate Source Charge	Q _{gs}	V _{GS} =20V, V _{DS} =4.5V, I _D =4.3A		1.1			
Gate Drain Charge	Q _{gd}			0.9			
Turn-On DelayTime	t _{d(on)}	V _{DD} = 20V, R _L = 5.7Ω I _D =3.5A, V _{GEN} = 4.5V, R _G = 1Ω		12	20	ns	
Turn-On Rise Time	t _r			50	75		
Turn-Off DelayTime	t _{d(off)}			10	20		
Turn-Off Fall Time	t _f			8	16		
Turn-On DelayTime	t _{d(on)}	V _{DD} = 20V, R _L = 5.7Ω I _D =3.5A, V _{GEN} = 10V, R _G = 1Ω		7	14	ns	
Turn-On Rise Time	t _r			20	30		
Turn-Off DelayTime	t _{d(off)}			14	21		
Turn-Off Fall Time	t _f			8	16		
Body Diode Reverse Recovery Time	t _{rr}	I _F =3.5A, di/dt=100A/μs, T _J =25°C		15	23	nC	
Body Diode Reverse Recovery Charge	Q _{rr}			7	14		
Reverse Recovery Fall Time	t _a			11			ns
Reverse Recovery Rise Time	t _b			4			
Maximum Body-Diode Continuous Current	I _S	T _c =25°C			1.75	A	
Pulse Diode Forward Current	I _{SM}				20		
Diode Forward Voltage	V _{SD}	I _S =3.5A, V _{GS} =0V			1.2	V	

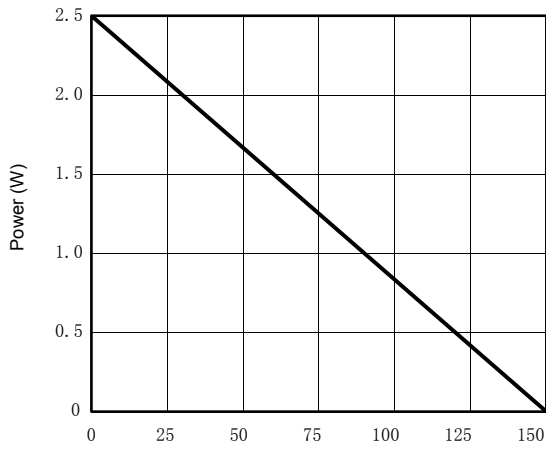
Typical Characteristics



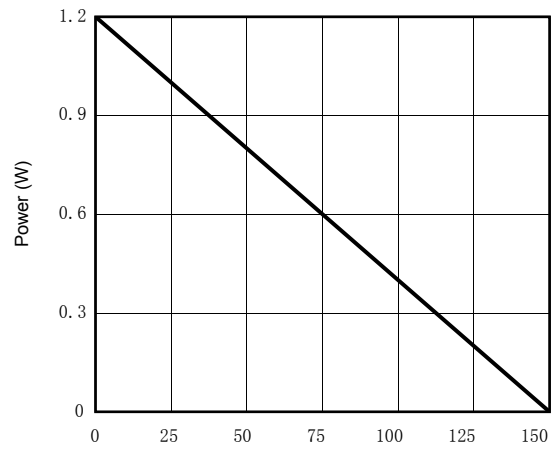
■ Typical Characteristics



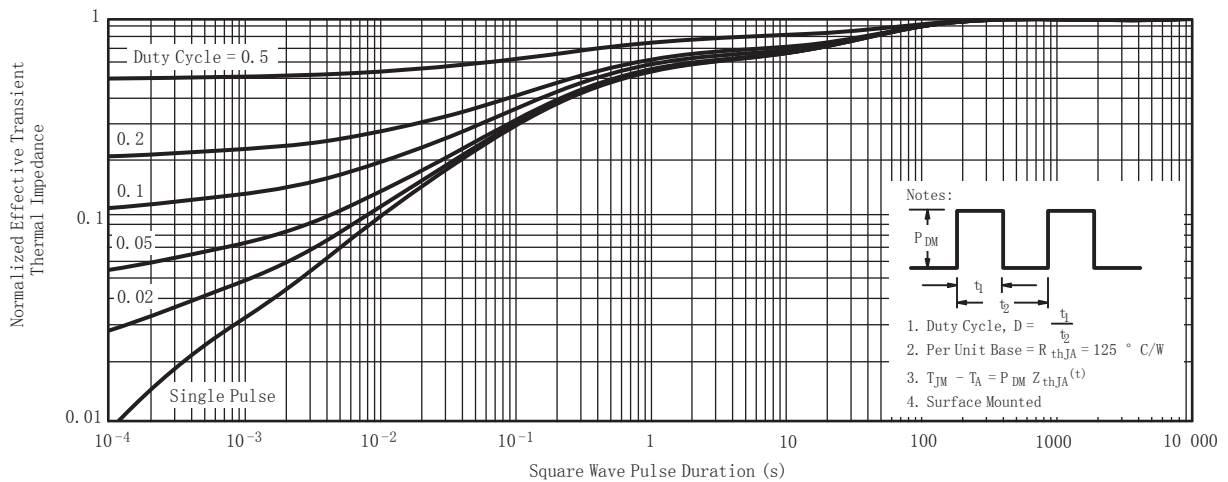
■ Typical Characteristics



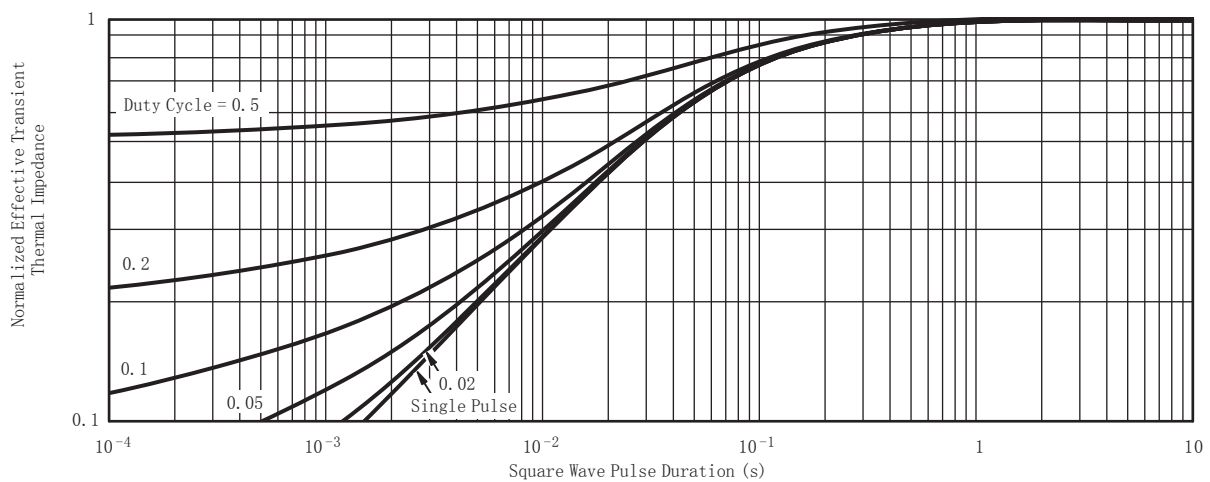
T_C - Case Temperature (°C)
Power Derating, Junction-to-Foot



T_A - Ambient Temperature (°C)
Power Derating, Junction-to-Ambient

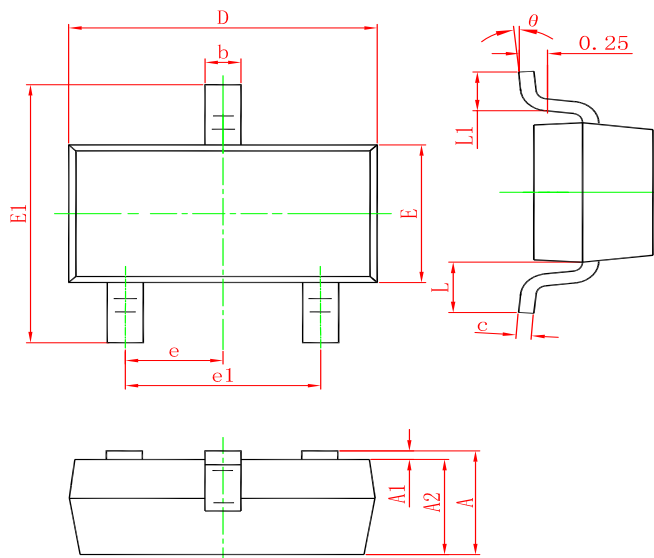


Normalized Thermal Transient Impedance, Junction-to-Ambient



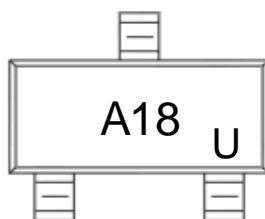
Normalized Thermal Transient Impedance, Junction-to-Foot

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 SI2318A	SOT-23	3000	Tape and reel