

**N-Channel Enhancement Mode Field Effect Transistor****PRODUCT SUMMARY**

V _{DSS}	I _D	R _{DS(ON)} (mΩ) Typ
33V	24A	5.0 @ V _{GS} =10V
		6.5 @ V _{GS} =6V

FEATURES

- Super high dense cell design for low R_{DS(ON)}.
- Rugged and reliable.
- Surface Mount Package.
- ESD Protected.

**ABSOLUTE MAXIMUM RATINGS (T_A=25°C unless otherwise noted)**

Symbol	Parameter	Limit	Units
V _{DS}	Drain-Source Voltage	33	V
V _{GS}	Gate-Source Voltage	±20	V
I _D	Drain Current-Continuous	24	A
I _{DM}	-Pulsed ^a	72	A
E _{AS}	Single Pulse Avalanche Energy ^c	121	mJ
P _D	Maximum Power Dissipation	1.67	W
T _J , T _{STG}	Operating Junction and Storage Temperature Range	-55 to 150	°C

THERMAL CHARACTERISTICS

R _{θJA}	Thermal Resistance, Junction-to-Ambient	75	°C/W
------------------	---	----	------

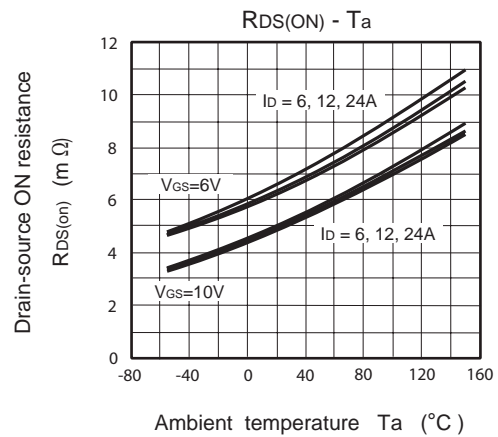
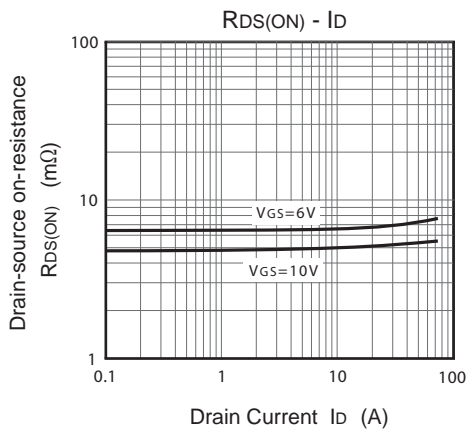
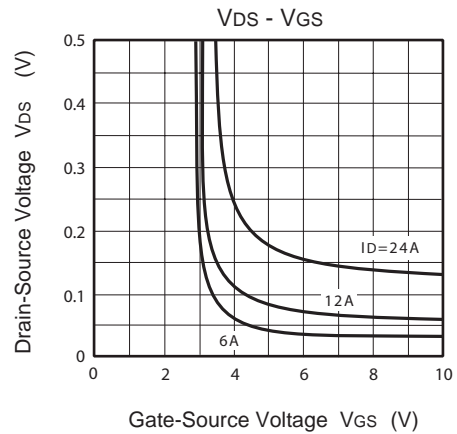
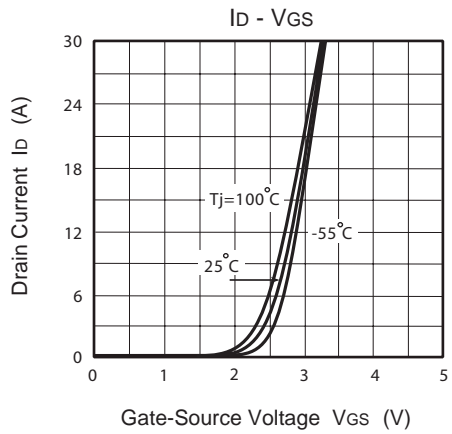
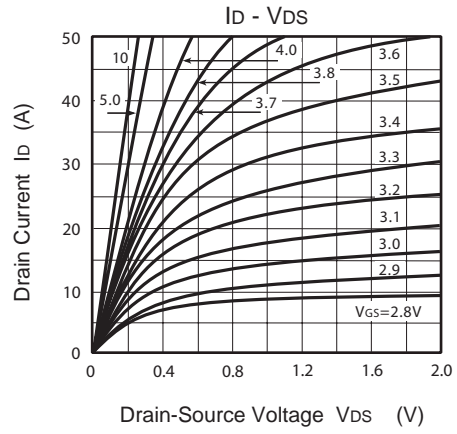
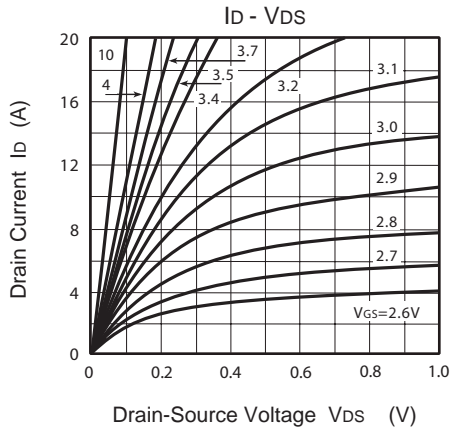
SP8009EL

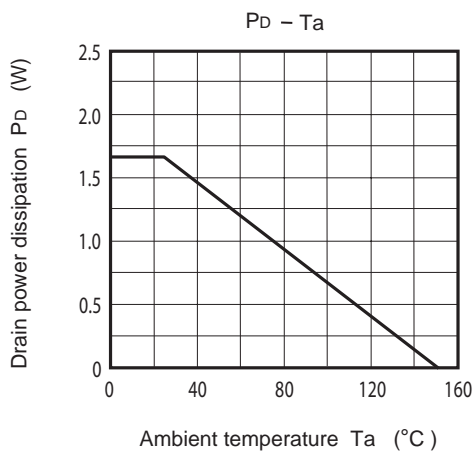
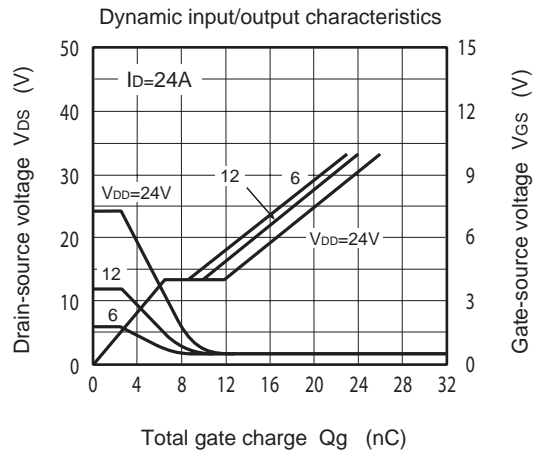
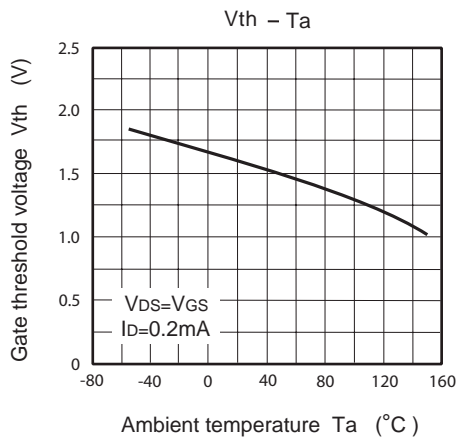
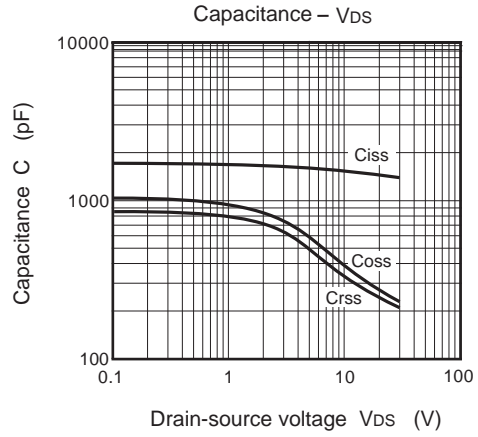
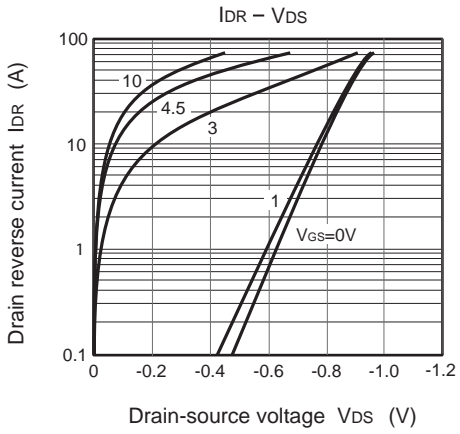
Ver 1.0

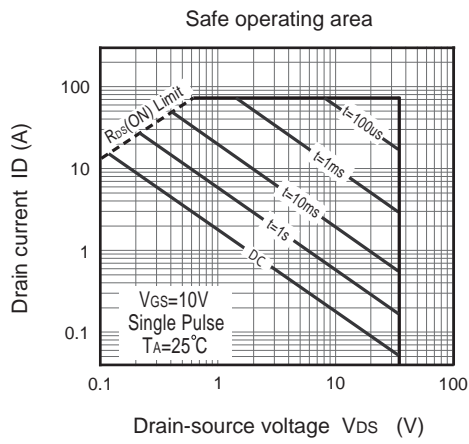
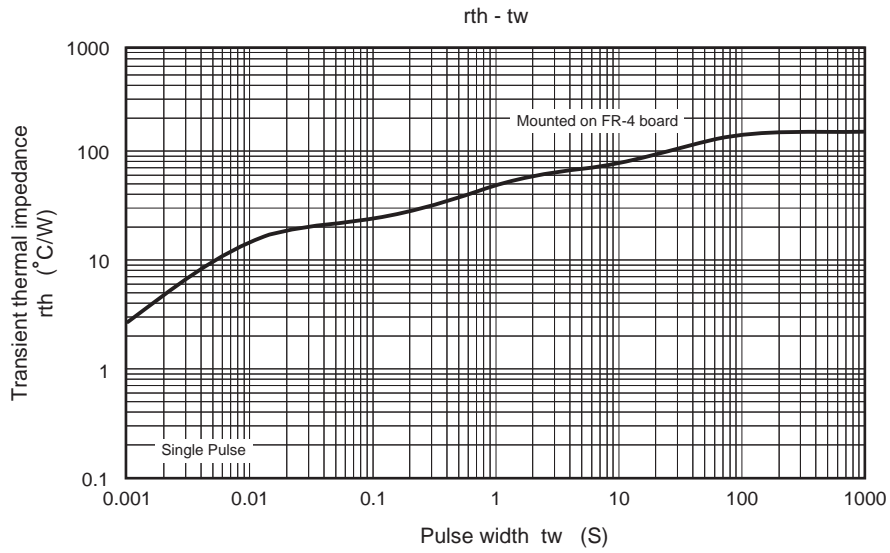
ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
OFF CHARACTERISTICS						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =10mA	33			V
BV _{DSX}		V _{GS} =-20V, I _D =10mA	10			V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =33V, V _{GS} =0V			10	uA
I _{GSS}	Gate-Body Leakage Current	V _{GS} = ±20V, V _{DS} =0V			±10	uA
ON CHARACTERISTICS						
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =0.2mA	1	1.6	3	V
R _{DS(ON)}	Drain-Source On-State Resistance	V _{GS} =10V, I _D =12A		5.0	6.5	m ohm
		V _{GS} =6V, I _D =12A		6.5	9.0	m ohm
DYNAMIC CHARACTERISTICS^b						
C _{ISS}	Input Capacitance	V _{DS} =10V, V _{GS} =0V f=1.0MHz		1670		pF
C _{OSS}	Output Capacitance			362		pF
C _{RSS}	Reverse Transfer Capacitance			333		pF
SWITCHING CHARACTERISTICS^b						
t _{D(ON)}	Turn-On Delay Time	V _{DD} =15V I _D =12A V _{GS} =10V R _{GEN} = 4.7 ohm		29		ns
t _r	Rise Time			35		ns
t _{D(OFF)}	Turn-Off Delay Time			68		ns
t _f	Fall Time			17		ns
Q _g	Total Gate Charge		V _{DS} =24V, I _D =24A, V _{GS} =10V		26	
Q _{gs}	Gate-Source Charge	V _{DS} =24V, I _D =24A, V _{GS} =10V		6.5		nC
Q _{gd}	Gate-Drain Charge			5.3		nC
DRAIN-SOURCE DIODE CHARACTERISTICS AND MAXIMUM RATINGS						
V _{SD}	Diode Forward Voltage	V _{GS} =0V, I _S =24A		0.86	1.3	V
Notes						
<p>a. Pulse Test: Pulse Width < 300us, Duty Cycle < 2%.</p> <p>b. Guaranteed by design, not subject to production testing.</p> <p>c. Starting T_J=25°C, L=0.5mH, V_{DD} = 20V.</p>						

Aug,07,2013

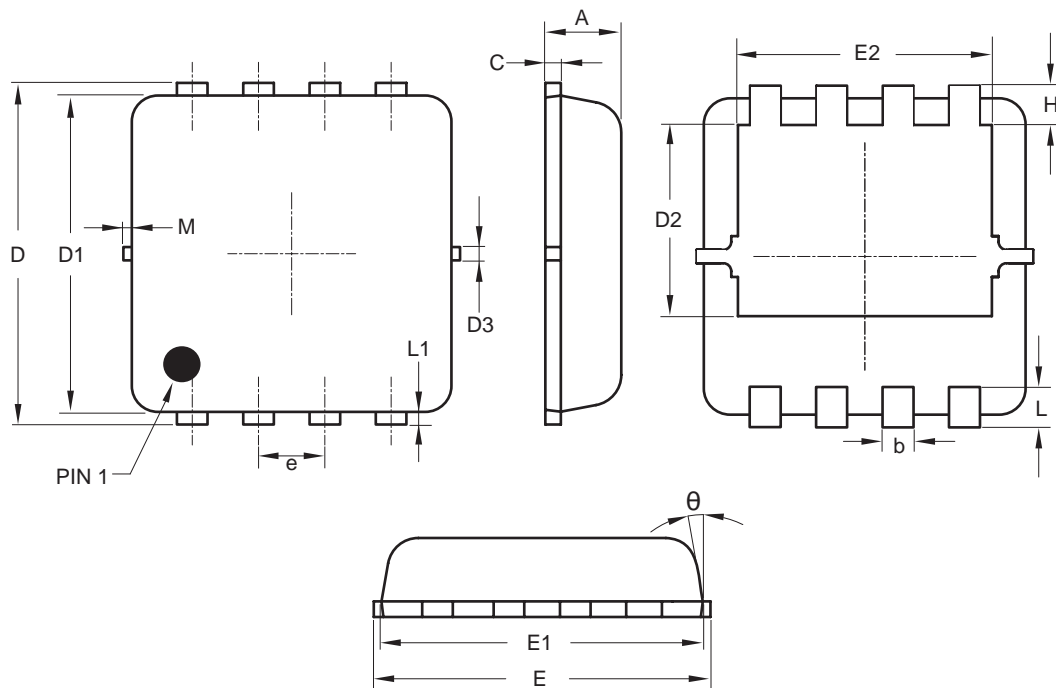




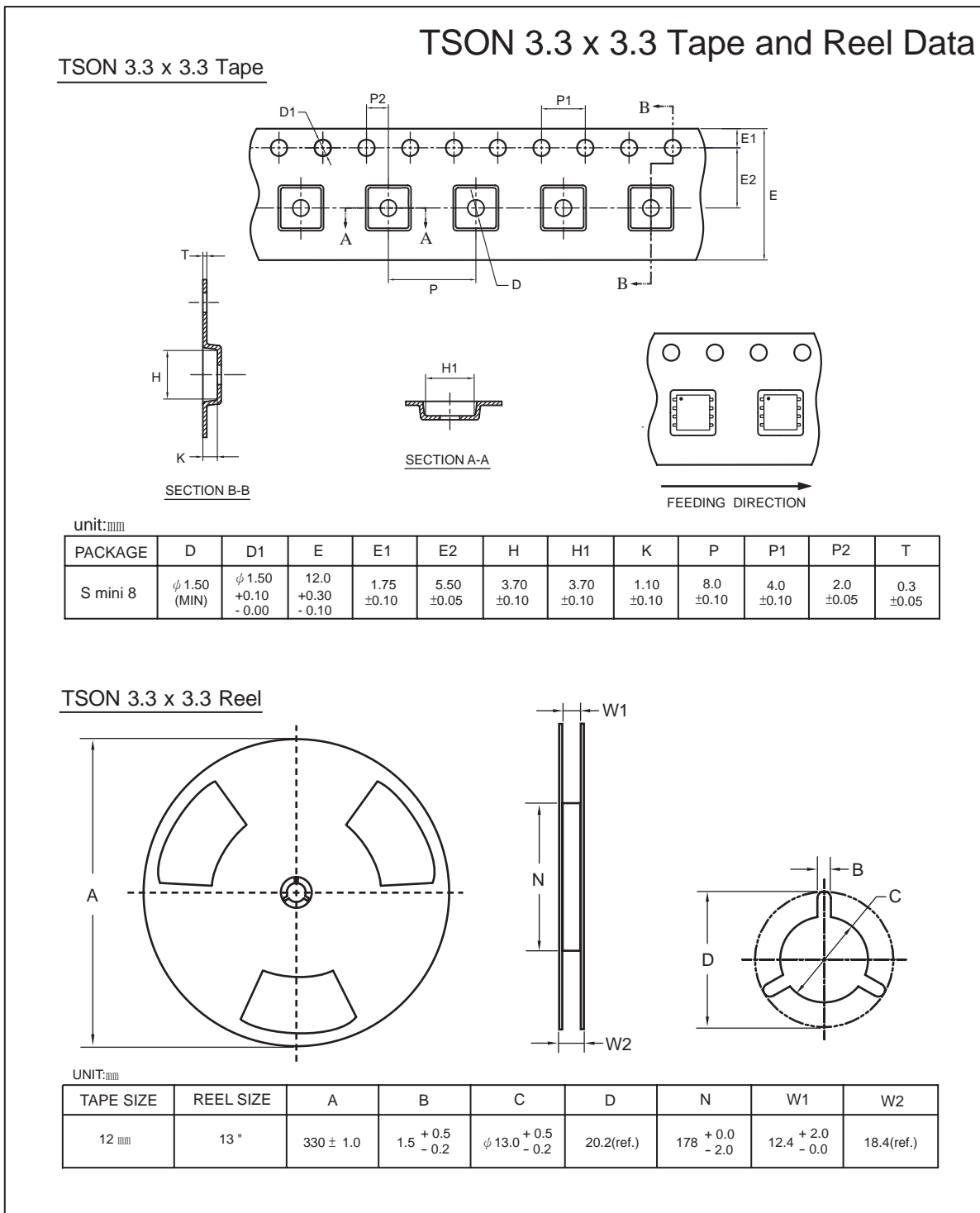


PACKAGE OUTLINE DIMENSIONS

TSON 3.3 x 3.3



SYMBOLS	MILLIMETERS		
	MIN.	NOM.	MAX.
A	0.70	0.75	0.80
b	0.25	0.30	0.35
C	0.10	0.15	0.25
D	3.25	3.35	3.45
D1	3.00	3.10	3.20
D2	1.78	1.88	1.98
D3	—	0.13	—
E	3.20	3.30	3.40
E1	3.00	3.15	3.20
E2	2.39	2.49	2.59
e	0.65 BSC		
H	0.30	0.39	0.50
L	0.30	0.40	0.50
L1	—	0.13	—
M	—	—	0.15
θ	—	10°	12°



TOP MARKING DEFINITION

