

P-Channel MOSFET

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
-20V	50mΩ@-4.5V	-4A
	60mΩ@-2.5V	
	90mΩ@-1.8V	

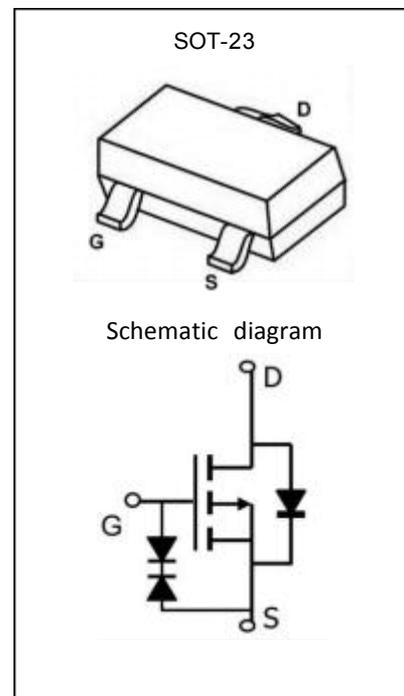
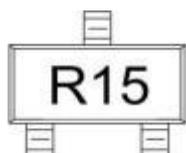
Feature

- Excellent RDS(ON), low gate charge, low gate voltages
- TrenchFET power MOSFET
- ESD protected gate

Application

- Load switch and in PWM applicatopns

MARKING:



ABSOLUTE MAXIMUM RATINGS ($T_a=25C$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain- Source Voltage	V_{DS}	-20	V
Gate- Source Voltage	V_{GS}	±8	V
Continuous Drain Current($t \leq 10s$)	I_D	-4.0	A
Maximum Power Dissipation($t \leq 10s$)	P_D	0.35	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	357	C/ W
Operating Junction Temperature	T_J	150	C
Storage Temperature	T_{STG}	-55~ + 150	C

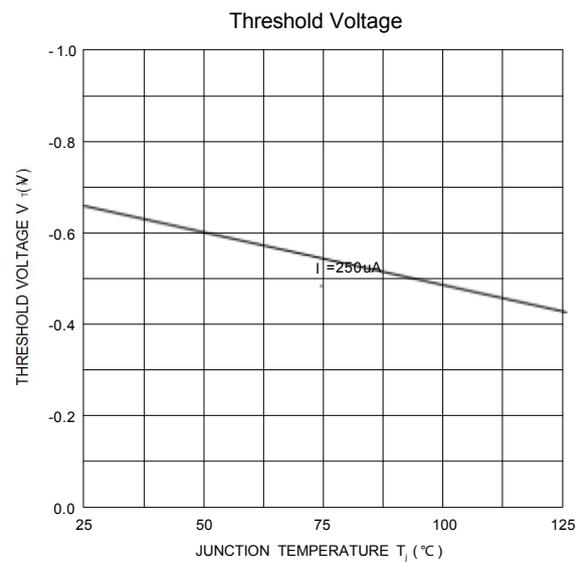
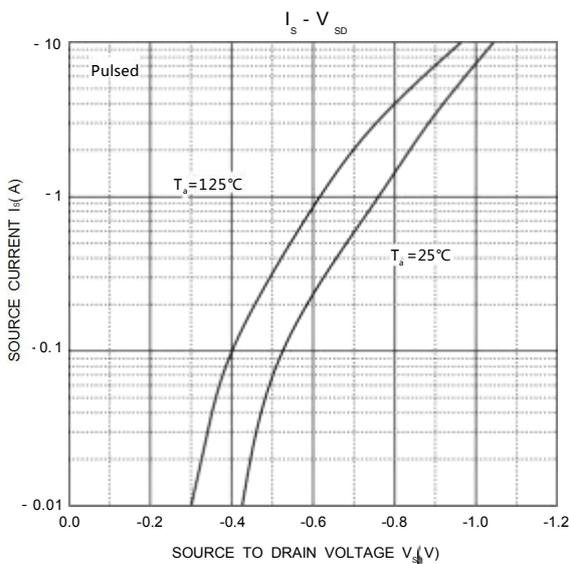
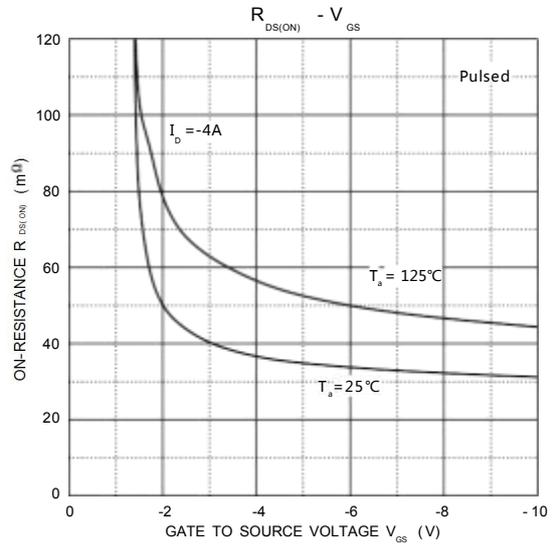
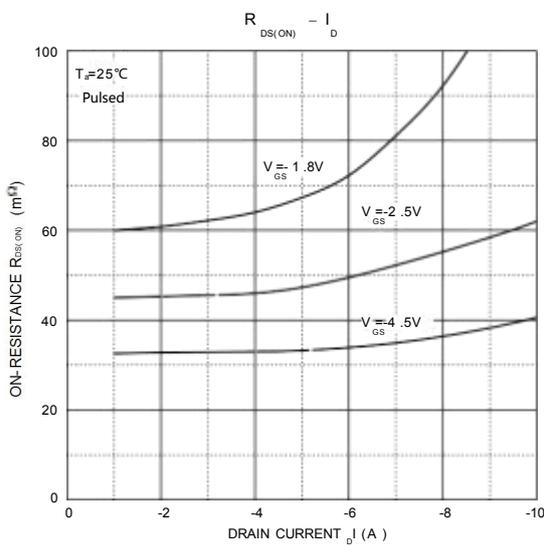
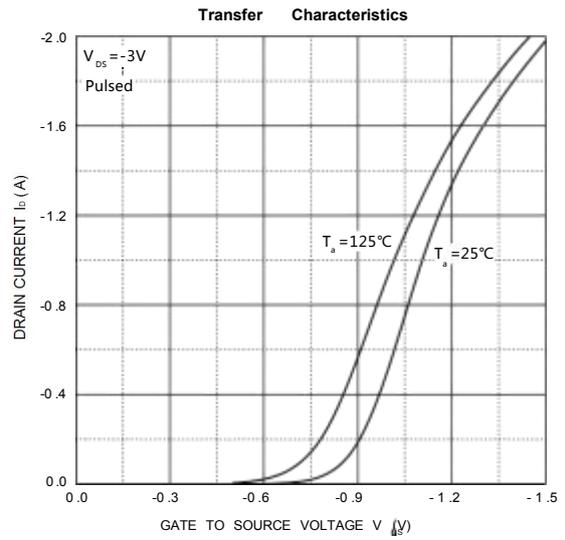
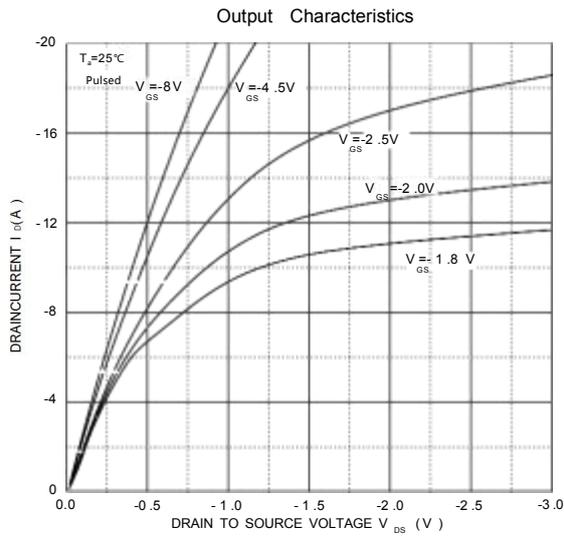
MOSFET ELECTRICAL CHARACTERISTICS (T_a=25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = -250μA	-20			V
Zero gate voltage drain current	I _{DSS}	V _{DS} = -16V, V _{GS} = 0V			-1	μA
Gate-body leakage current	I _{GSS}	V _{GS} = ±8V, V _{DS} = 0V			±10	μA
Gate threshold voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-0.3	-0.65	-1.0	V
Drain-source on-resistance ⁽¹⁾	R _{DS(on)}	V _{GS} = -4.5V, I _D = -4A		33	50	mΩ
		V _{GS} = -2.5V, I _D = -4A		45	60	
		V _{GS} = -1.8V, I _D = -2A		63	90	
Forward transconductance ⁽²⁾	g _{FS}	V _{DS} = -5V, I _D = -4A	8			S
Dynamic characteristics⁽³⁾						
Input Capacitance	C _{iss}	V _{DS} = -10V, V _{GS} = 0V, f = 1MHz		1450		PF
Output Capacitance	C _{oss}			205		
Reverse Transfer Capacitance	C _{rss}			160		
Gate resistance	R _g	V _{DS} = 0V, V _{GS} = 0V, f = 1MHz		6.5		Ω
Switching Characteristics						
Turn-on delay time ⁽³⁾	t _{d(on)}	V _{DS} = -10V, V _{GS} = -4.5V R _{GEN} = 3Ω, R _L = 2.5Ω,		9.5		ns
Turn-on rise time ⁽³⁾	t _r			17		
Turn-off delay time ⁽³⁾	t _{d(off)}			94		
Turn-off fall time ⁽³⁾	t _f			35		
Total gate charge	Q _g	V _{DS} = -10V, V _{GS} = -4.5V, I _D = -4A		17.2		nC
Gate-source charge	Q _{gs}			1.3		
Gate-drain charge	Q _{gd}			4.5		
Source-Drain Diode characteristics						
Diode Forward voltage ⁽²⁾	V _{DS}	V _{GS} = 0V, I _S = -1A			-1	V

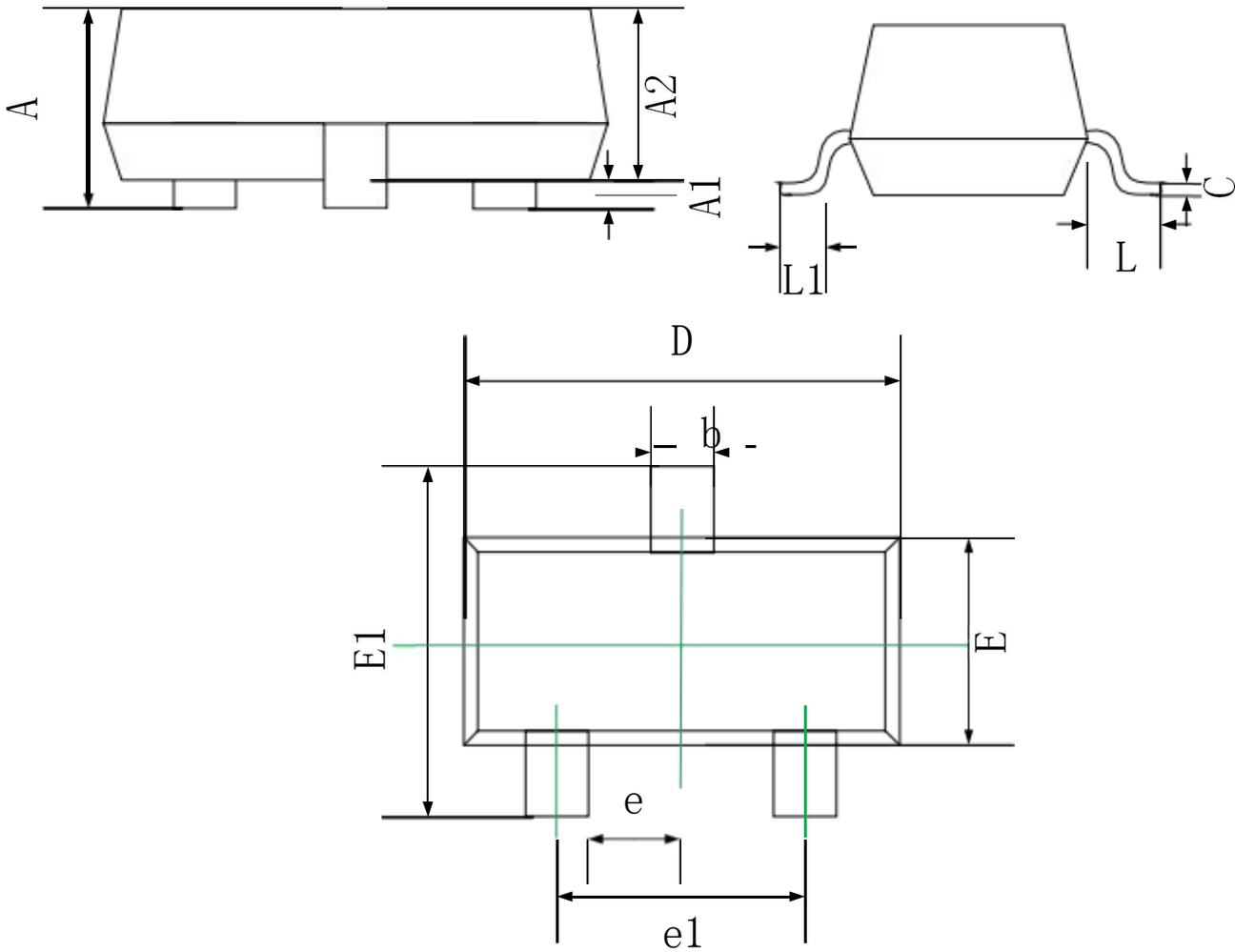
Notes:

1. Repetitive rating, pulse width limited by junction temperature.
2. Pulse Test : Pulse width < = 300μs, duty cycle < = 2%.
3. These parameters have no way to verify.

Typical Electrical and Thermal Characteristics



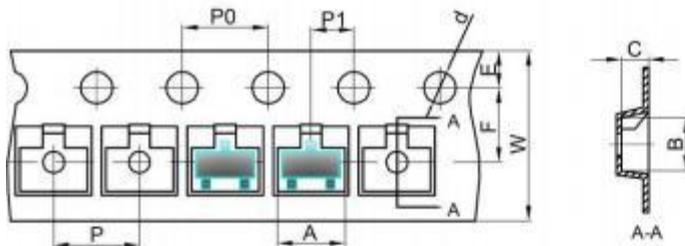
SOT-23 Package Information



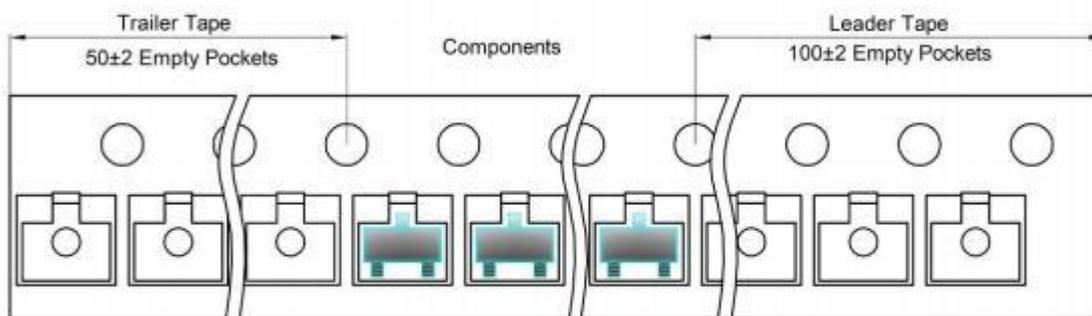
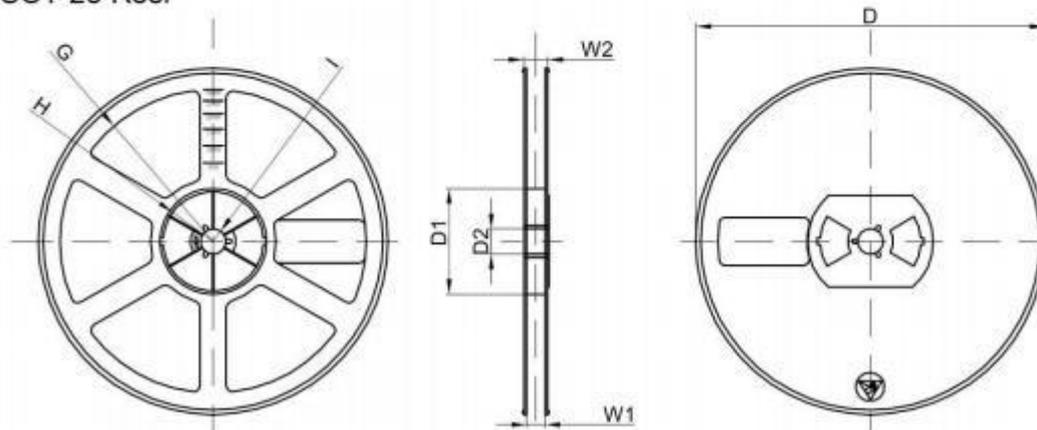
Symbol	Dimensions In Millimeters	
	Min.	Max.
A	0.90	1.15
A1	0.00	0.10
A2	0.90	1.05
b	0.30	0.50
c	0.08	0.15
D	2.80	3.00
E	1.20	1.40
E1	2.25	2.55
e	0.95 REF.	
e1	1.80	2.00
L	0.55 REF.	
L1	0.30	0.50

SOT-23 Tape and Reel
SOT-23 Tape and reel

SOT-23 Embossed Carrier Tape



Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
SOT-23	3.15	2.77	1.22	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00

SOT-23 Tape Leader and Trailer

SOT-23 Reel


Dimensions are in millimeter								
Reel Option	D	D1	D2	G	H	I	W1	W2
7" Dia	Ø178.00	54.40	13.00	R78.00	R25.60	R6.50	9.50	12.30

REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)	G.W.(kg)
3000 pcs	7 inch	30,000 pcs	203×203×195	120,000 pcs	438×438×220	

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