

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	

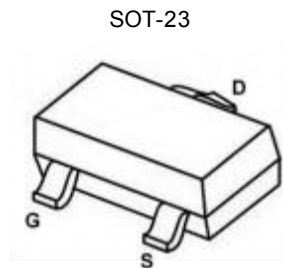
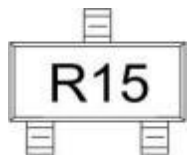
Feature

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

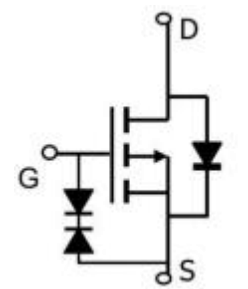
Application

- Load switch and in PWM applications

MARKING:



Schematic diagram



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

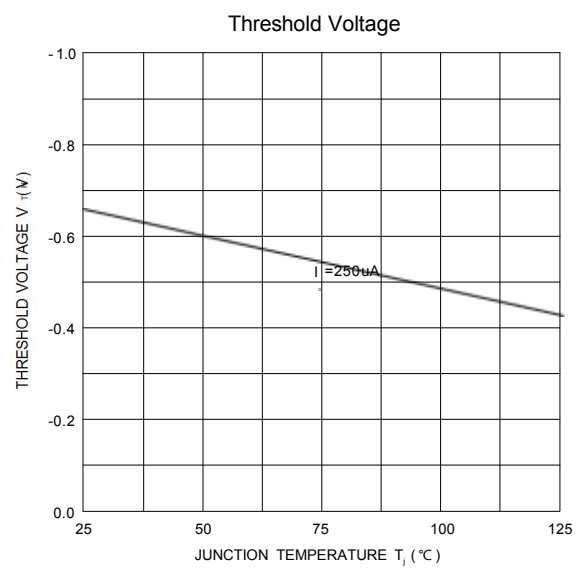
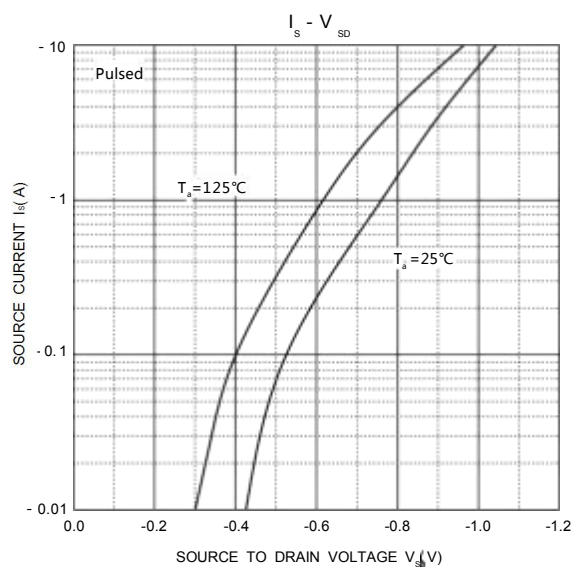
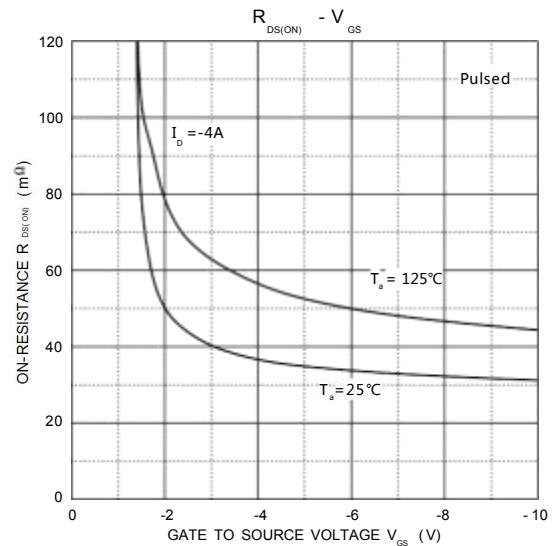
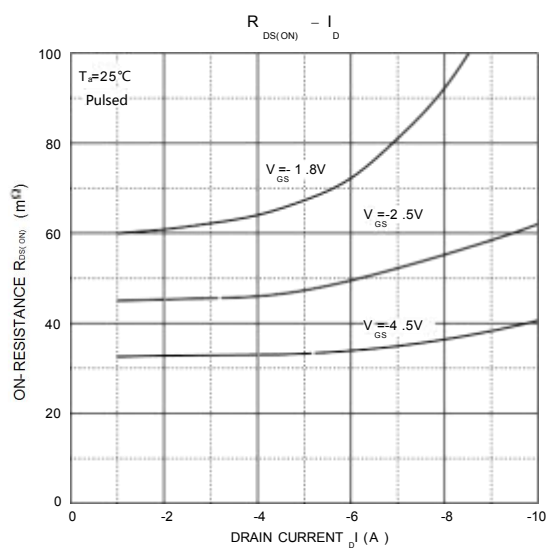
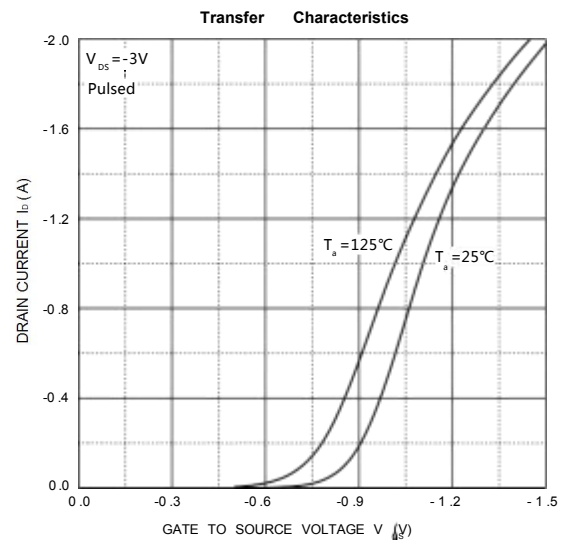
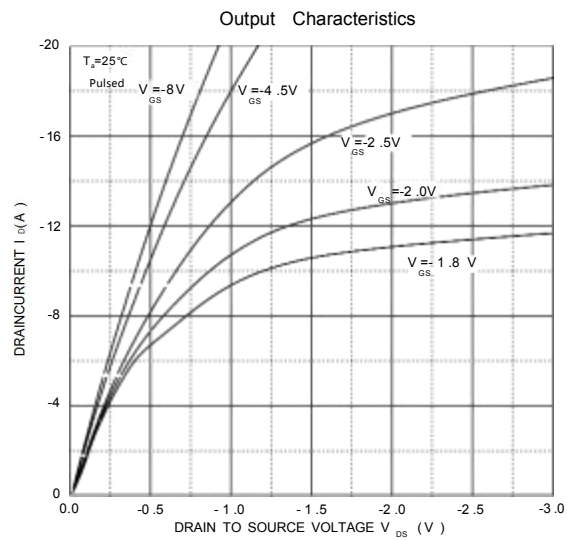
Parameter	Symbol	Value	Unit
Drain- Source Voltage	V_{DS}	-20	V
Gate- Source Voltage	V_{GS}	±8	V
Continuous Drain Current (t≤10s)	I_D	-4.0	A
Maximum Power Dissipation (t≤10s)	P_D	0.35	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	357	°C/W
Operating Junction Temperature	T_J	150	°C
Storage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

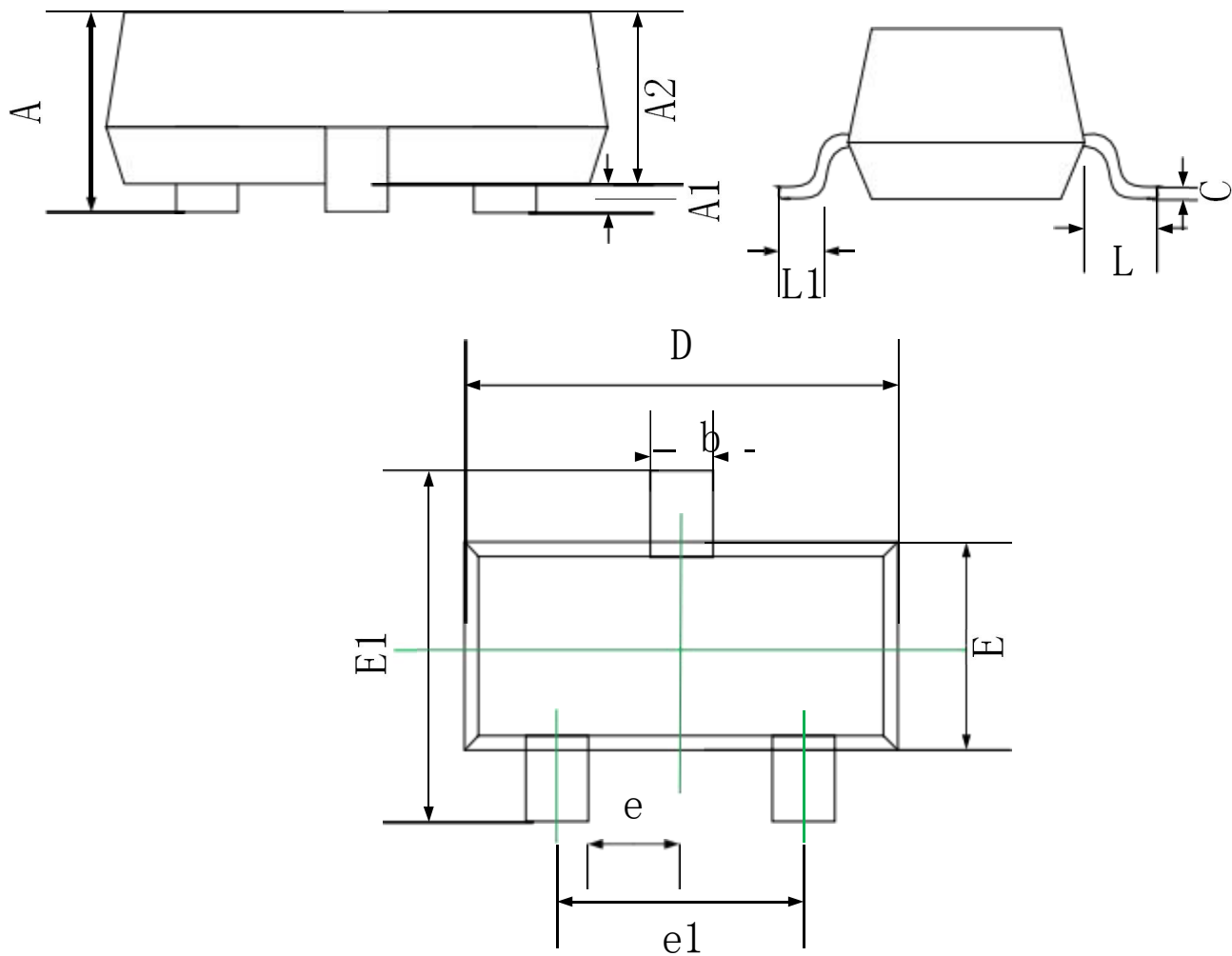
MOSFET ELECTRICAL CHARACTERISTICS($T_a = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-20			V
Zero gate voltage drain current	I_{DSS}	$V_{DS} = -16V, V_{GS} = 0V$			-1	μA
Gate-body leakage current	I_{GSS}	$V_{GS} = \pm 8V, V_{DS} = 0V$			± 10	μA
Gate threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-0.3	-0.65	-1.0	V
Drain-source on-resistance ⁽¹⁾	$R_{DS(on)}$	$V_{GS} = -4.5V, I_D = -4A$		33	50	m Ω
		$V_{GS} = -2.5V, I_D = -4A$		45	60	
		$V_{GS} = -1.8V, I_D = -2A$		63	90	
Forward tranconductance ⁽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⁾	$t_{d(on)}$	$V_{DS} = -10V, V_{GS} = -4.5V$ $R_{GEN} = 3\Omega, R_L = 2.5\Omega,$		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 $\leq 300\mu s$, duty cycle $\leq 2\%$.
3. These parameters have no way to verify.

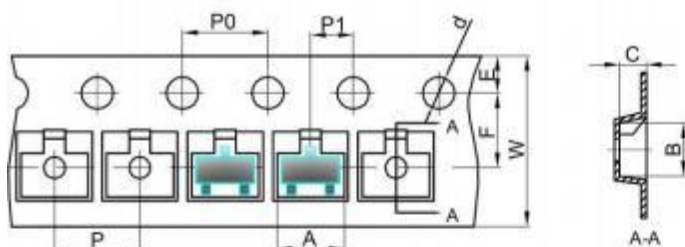
Typical Electrical and Thermal Characteristics


SOT-23 Package Information


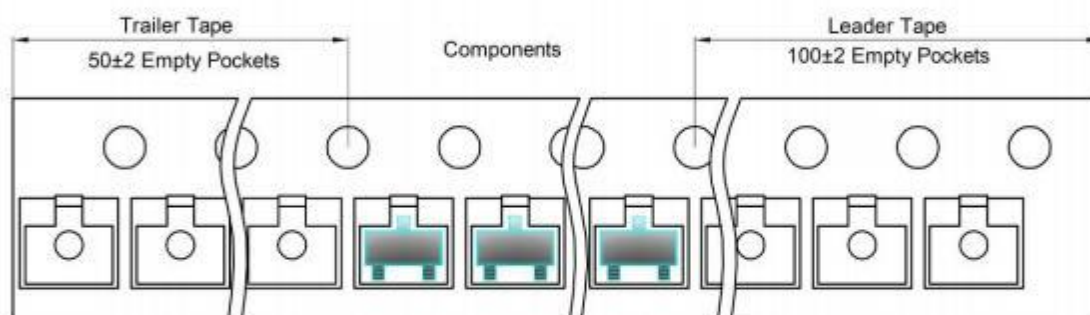
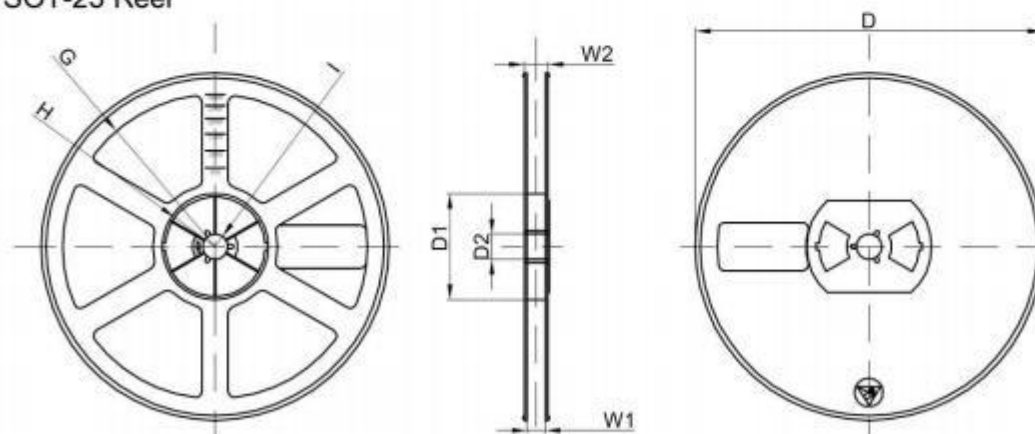
Symbol	Dimensions In Millimeters	
	Min.	Max.
A	0.90	1.15
A1	0.00	0.10
A2	0.90	1.05
b	0.30	0.50
c	0.08	0.15
D	2.80	3.00
E	1.20	1.40
E1	2.25	2.55
e	0.95 REF.	
e1	1.80	2.00
L	0.55 REF.	
L1	0.30	0.50

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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