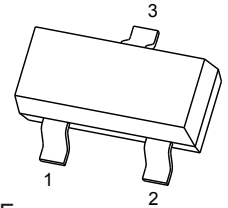


**SOT-23 Plastic-Encapsulate MOSFETS****NJ4459A** P-Channel MOSFET

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
-30V	46m Ω @-10V	-5A
	57m Ω @-4.5V	

SOT-23

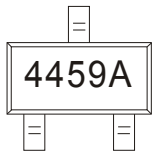
1. GATE

2. SOURCE

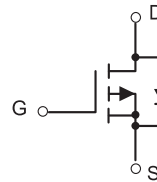
3. DRAIN

DESCRIPTION

The NJ4459A combines advanced trench MOSFET technology with a low resistance package to provide extremely low $R_{DS(ON)}$. This device is ideal for load switch and battery protection applications.

MARKING

4459A = Device code

Equivalent Circuit**MAXIMUM RATINGS ($T_J=25^{\circ}\text{C}$ unless otherwise noted)**

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	-5	A
Pulsed Drain Current	I_{DM}	-30	A
Power Dissipation	P_D	2	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	62.5	$^{\circ}\text{C/W}$
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55~+150	$^{\circ}\text{C}$

MOSFET ELECTRICAL CHARACTERISTICS

$T_J=25^{\circ}\text{C}$ unless otherwise specified

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit	
Off characteristics							
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-30	-	-	V	
Zero gate voltage drain current	I_{DSS}	$V_{DS} = -30V, V_{GS} = 0V$	$T_J = 25^{\circ}\text{C}$	-	-	-1.0	μA
			$T_J = 125^{\circ}\text{C}$	-	-	-100	
Gate-body leakage current	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 20V$	-	-	± 100	nA	
On characteristics ^③							
Gate-threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-1.0	-1.6	-2.5	V	
Static drain-source on-state resistance	$R_{DS(on)}$	$V_{GS} = -10V, I_D = -5A$	-	37	46	m Ω	
		$V_{GS} = -4.5V, I_D = -5A$	-	44	57	m Ω	
Forward transconductance	g_{FS}	$V_{DS} = -5V, I_D = -5A$	-	6.5	-	S	
Dynamic characteristics							
Input capacitance	C_{iss}	$V_{DS} = -15V, V_{GS} = 0V, f = 1\text{MHz}$	-	683	-	μF	
Output capacitance	C_{oss}		-	97	-		
Reverse transfer capacitance	C_{rss}		-	54.6	-		
Gate resistance	R_g	$f = 1\text{MHz}$	-	14	-	Ω	
Switching characteristics							
Total gate charge	Q_g	$V_{GS} = -4.5V, V_{DD} = -15V, I_D = -5A$	-	5.6	-	nC	
Total gate charge	Q_g	$V_{GS} = -10V, V_{DD} = -15V, I_D = -5A$	-	11.4	-		
Gate-source charge	Q_{gs}		-	2.1	-		
Gate-drain charge	Q_{gd}		-	1.7	-		
Drain-Source Diode Characteristics							
Drain-source diode forward voltage	V_{SD}	$V_{GS} = 0V, I_S = -1A$	-	-	-1.0	V	
Continuous drain-source diode forward current	I_S		-	-	-5	A	
Pulsed drain-source diode forward current	I_{SM}		-	-	-30	A	

Notes:

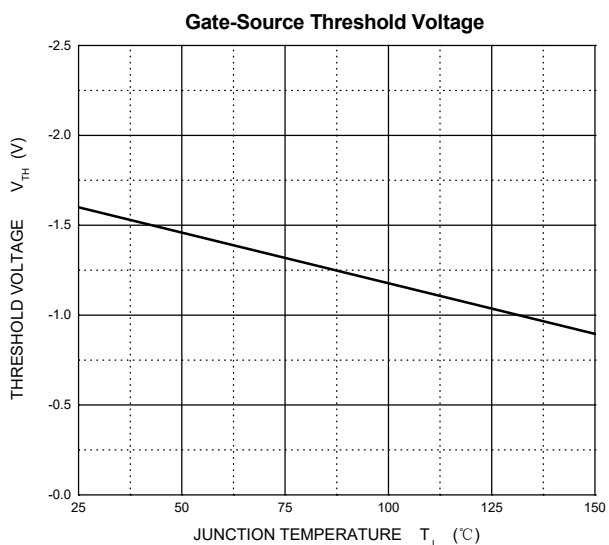
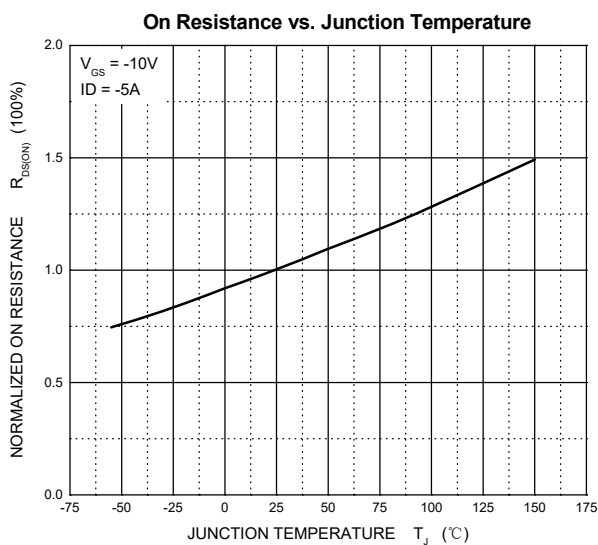
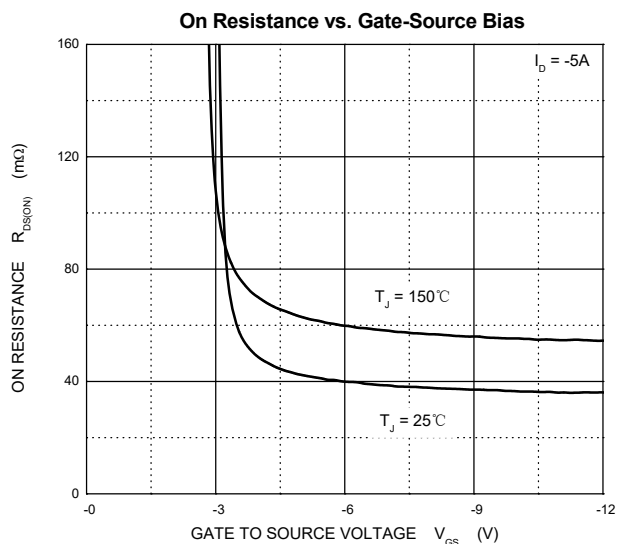
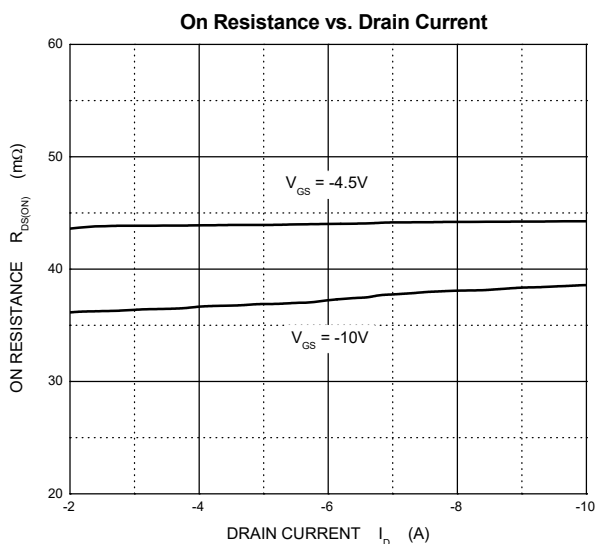
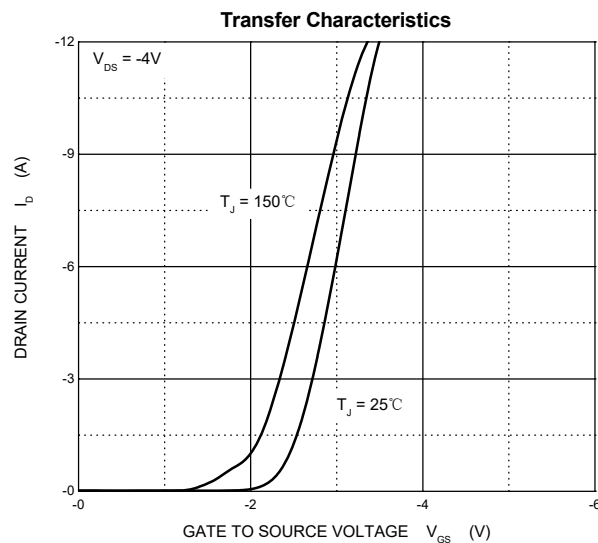
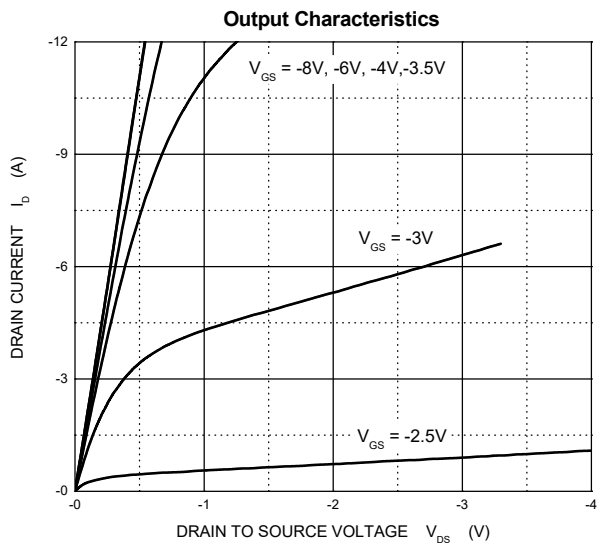
1. $T_A = 25^{\circ}\text{C}$.

2. Limited only by maximum temperature allowed.

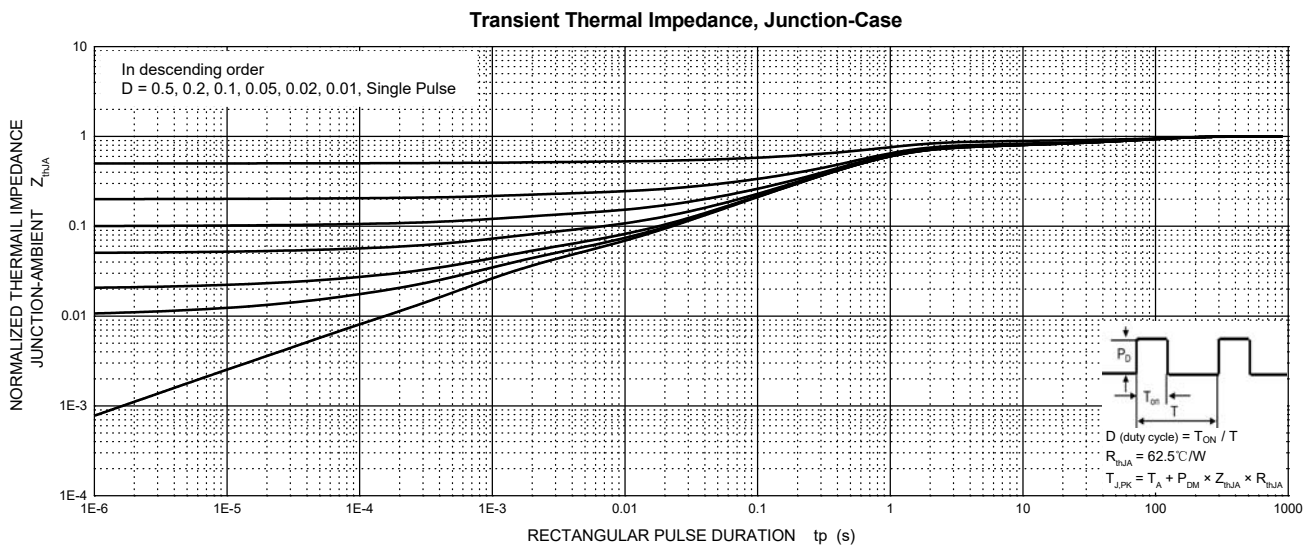
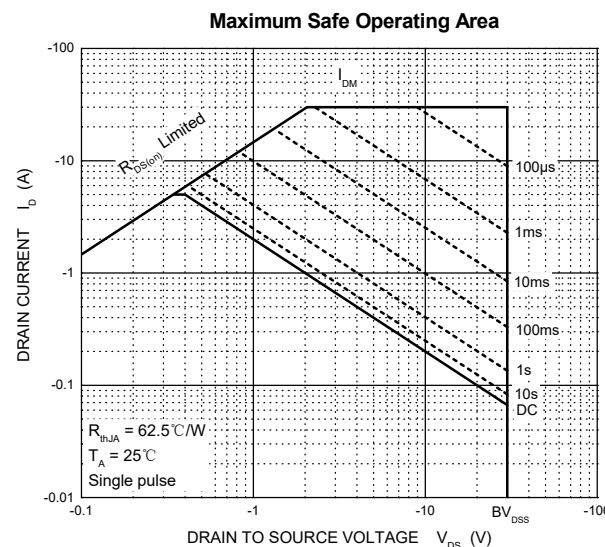
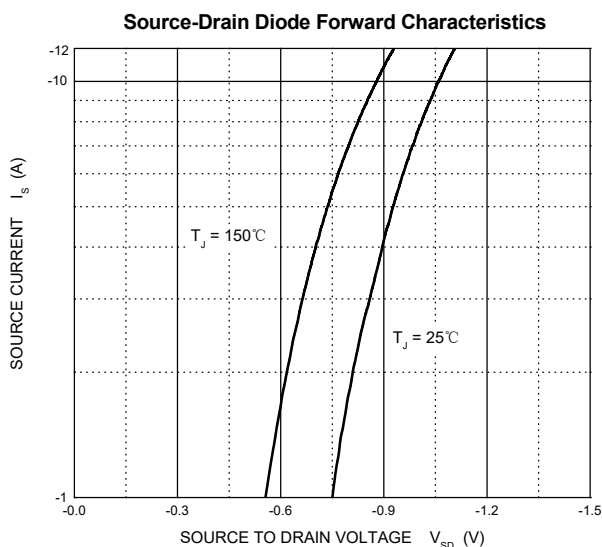
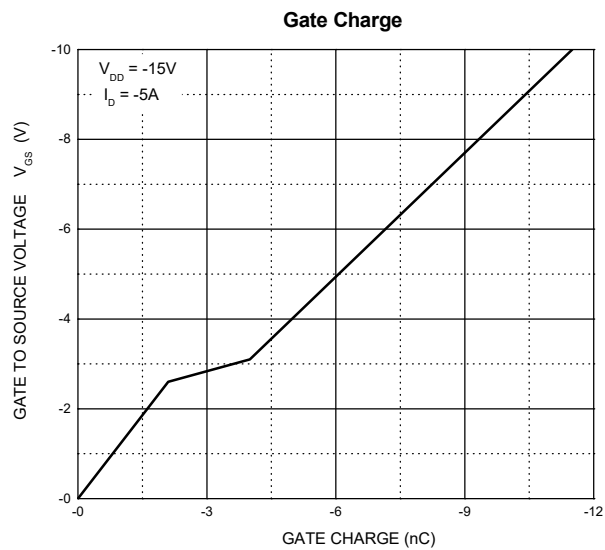
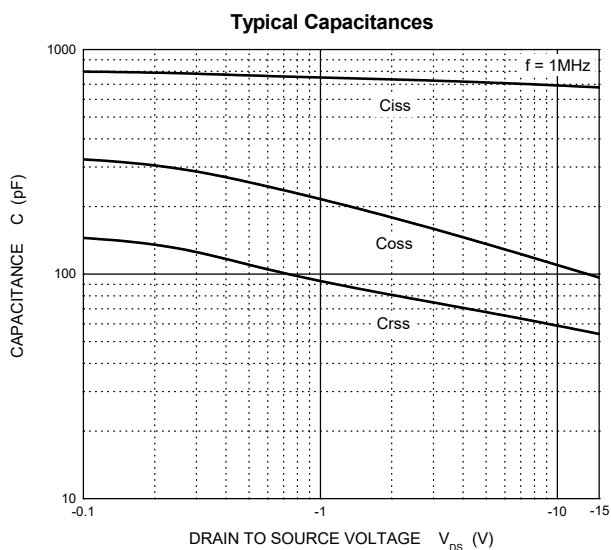
3. Pulse Test : Pulse Width $\leq 380\mu s$, duty cycle $\leq 2\%$.

4. Device mounted on 1 in² FR-4 board with 2-sided 2oz. Copper, in a still air environment with $T_A = 25^{\circ}\text{C}$.

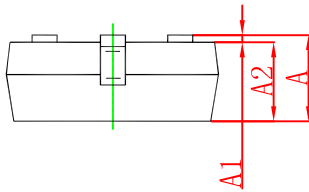
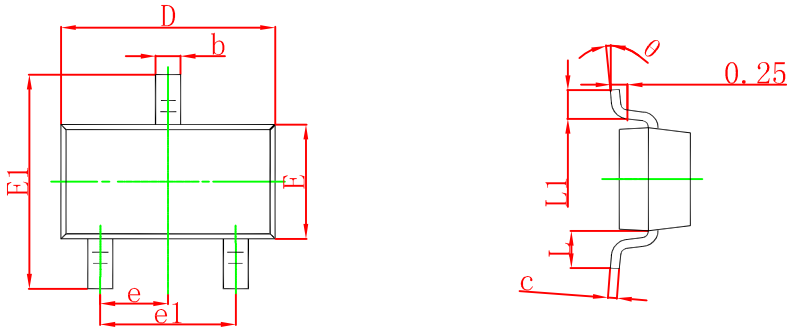
Typical Characteristics ($T_J = 25^\circ\text{C}$, unless otherwise specified)



Typical Characteristics ($T_J = 25^\circ\text{C}$, unless otherwise specified)

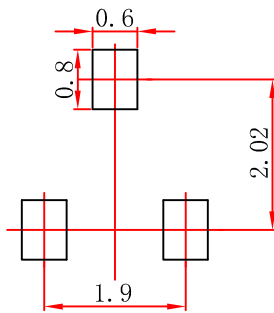


SOT-23 Package Outline Dimensions



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°

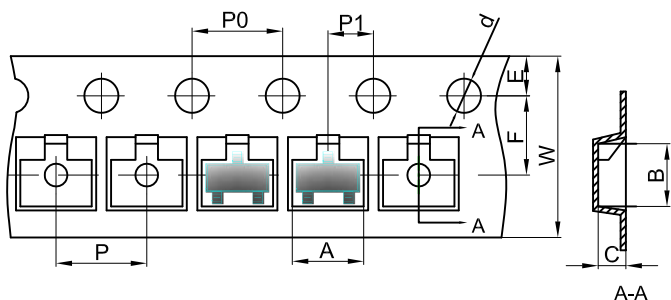
SOT-23 Suggested Pad Layout



- Note:
1. Controlling dimension: in millimeters.
 2. General tolerance: $\pm 0.05\text{mm}$.
 3. The pad layout is for reference purposes only.

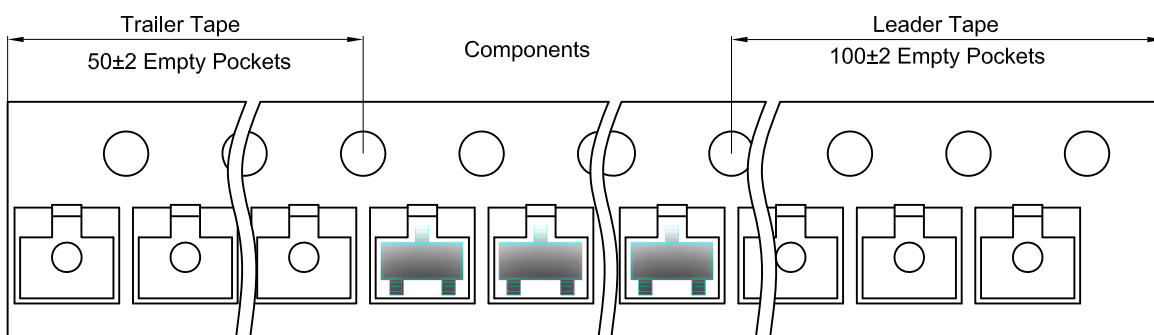
SOT-23 Tape and Reel

SOT-23 Embossed Carrier Tape

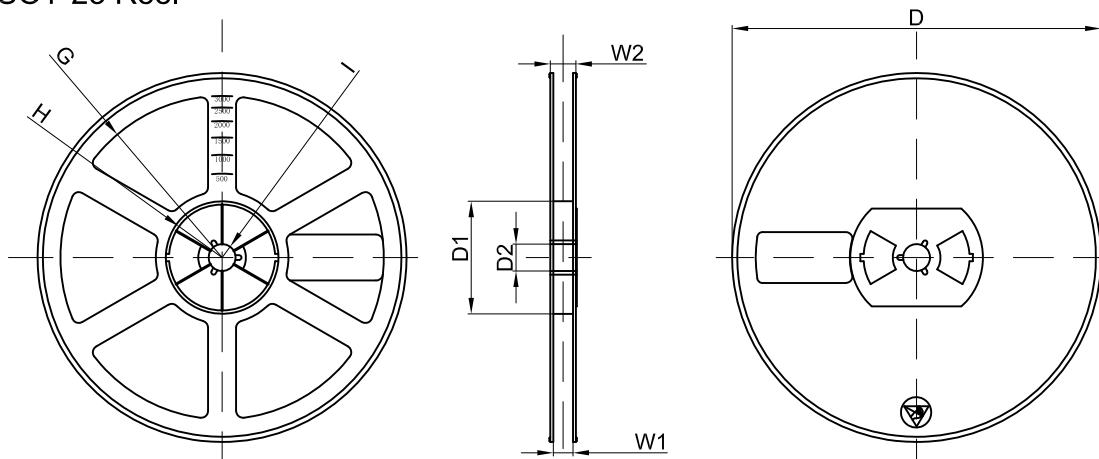


Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
SOT-23	3.15	2.77	1.22	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00

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	45,000 pcs	203×203×195	180,000 pcs	438×438×220	