

MSAER57N10A

Features

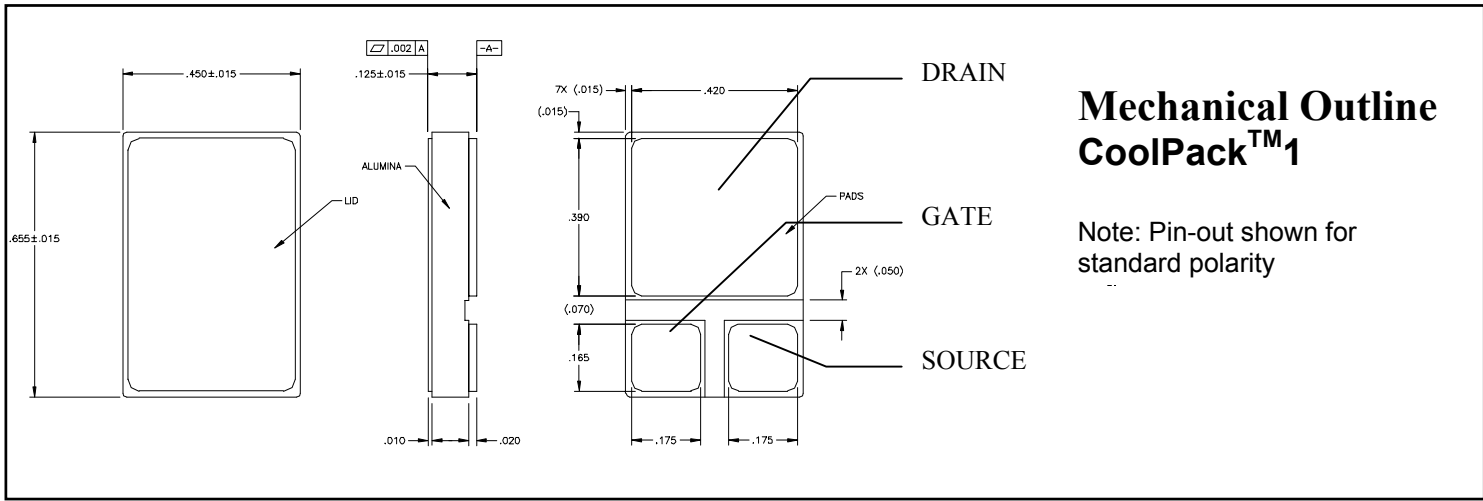
- MOSKEY™ - Mosfet and Schottky in a single package
- Ultra Low On-Resistance
- 175°C Operating Temperature
- Increased Unclamped Inductive Switching (UIS) capability
- Hermetically sealed, surface mount power package
- Low package inductance
- Very low thermal resistance
- Reverse polarity available upon request (MSAER57N10AR)
- Available with TX/TXV-level screening (MSAER57N10AV) or S-level screening (MSAER57N10AS) i.a.w. Microsemi internal procedure, PS11.50

100 Volts
57 Amps
25 mΩ

N-CHANNEL
ENHANCEMENT MODE
POWER MOSFET
+ SCHOTTKY

Maximum Ratings @ 25°C (unless otherwise specified)

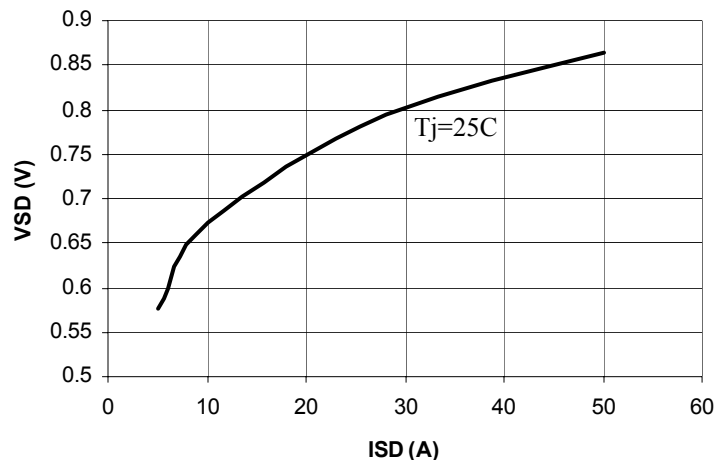
	SYMBOL	MAX.	UNIT
Drain-to-Source Breakdown Voltage (Gate Shorted to Source) @ T _J ≥ 25°C	BV _{DSS}	100	Volts
Continuous Gate-to-Source Voltage	V _{GS}	+/-20	Volts
Continuous Drain Current T _J = 25°C T _J = 100°C	I _{D25} I _{D100}	57 40	Amps
Peak Drain Current, pulse width limited by T _{Jmax}	I _{DM}	180	Amps
Repetitive Avalanche Current	I _{AR}	28	Amps
Repetitive Avalanche Energy	E _{AR}	15	mJ
Single Pulse Avalanche Energy	E _{AS}	200	mJ
Voltage Rate of Change of the Recovery Diode @ I _S ≥ I _{DM} , di/dt ≤ 100 A/μs, V _{DD} ≤ V _{DSS} , T _J ≤ 150°C	dv/dt	5.0	V/ns
Power Dissipation @ T _C = 100°C	P _D	215	Watts
Junction Temperature Range	T _J	-55 to +175	°C
Storage Temperature Range	T _{stg}	-55 to +175	°C
Continuous Source Current (Body Diode)	I _S	57	Amps
Pulse Source Current (Body Diode)	I _{SM}	360	Amps
Thermal Resistance, Junction to Case	θ _{JC}	0.7	°C/W



Electrical Parameters @ 25°C (unless otherwise specified)

DESCRIPTION	SYMBOL	CONDITIONS	MIN	TYP.	MAX	UNIT
Drain-to-Source Breakdown Voltage (Gate Shorted to Source)	BV_{DSS}	$V_{GS} = 0\text{ V}, I_D = 250\ \mu\text{A}$	100			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\ \mu\text{A}$	2.0		4.0	V
Gate-to-Source Leakage Current	I_{GSS}	$V_{GS} = \pm 20V_{DC}, V_{DS} = 0$ $T_J = 25^\circ\text{C}$ $T_J = 125^\circ\text{C}$			± 100 ± 200	nA
Drain-to-Source Leakage Current (Zero Gate Voltage Drain Current)	I_{DSS}	$V_{DS} = 100\text{ V}, V_{GS} = 0\text{ V}, T_J = 25^\circ\text{C}$ $V_{DS} = 80\text{ V}, V_{GS} = 0\text{ V}, T_J = 125^\circ\text{C}$			25 15	μA mA
Static Drain-to-Source On-State Resistance (1)	$R_{DS(on)}$	$V_{GS} = 10\text{ V}, I_D = 28\text{ A}$		0.022	0.025	Ω
Forward Transconductance (1)	g_{fs}	$V_{DS} \geq 15\text{ V}; I_D = 28\text{ A}$	20	-		S
Input Capacitance Output Capacitance Reverse Transfer Capacitance	C_{iss} C_{oss} C_{rss}	$V_{GS} = 0\text{ V}, V_{DS} = 25\text{ V}, f = 1\text{ MHz}$		3100 1150 300		pF
Turn-on Delay Time Rise Time Turn-off Delay Time Fall Time	$T_{d(on)}$ t_r $t_{d(off)}$ t_f	$V_{GS} = 10\text{ V}, V_{DS} = 50\text{ V},$ $I_D = 28\text{ A}, R_G = 2.5\ \Omega$		14 59 58 48		ns
Total Gate Charge Gate-to-Source Charge Gate-to-Drain (Miller) Charge	$Q_{g(on)}$ Q_{gs} Q_{gd}	$V_{GS} = 10\text{ V}, V_{DS} = 80\text{ V}, I_D = 28\text{ A}$		115 10 66		nC
Body Diode Forward Voltage (1)	V_{SD}	$I_S = 28\text{ A}, V_{GS} = 0\text{ V}$		0.8	0.87	V

Body Diode typical Forward Voltage



Notes

- (1) Pulse test, $t \leq 300\ \mu\text{s}$, duty cycle $\delta \leq 2\%$
- (2) Microsemi Corp. does not manufacture the mosfet die; contact company for details.