Santa Ana, CA
Microsemi
Progress Powered by Technology

2830 S. Fairview St.
Santa Ana, CA 92704
PH: (714) 979-8220
FAX: (714) 966-5256

MSAER57N10A

Features

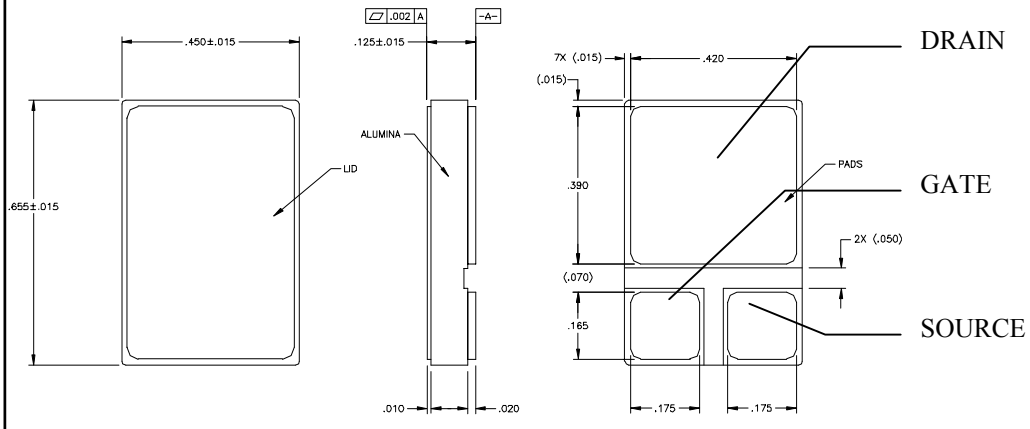
- MOSKEY™ - Mosfet and Schottky in a single package
- Ultra Low On-Resistance
- 175°C Operating Temperature
- Increased Unclamped Inductive Switching (UIS) capability
- Hermetically sealed, surface mount power package
- Low package inductance
- Very low thermal resistance
- Reverse polarity available 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) @ $T_J \geq 25°C$	BV_{DSS}	100	Volts
Continuous Gate-to-Source Voltage	V_{GS}	+/-20	Volts
Continuous Drain Current Tj= 25°C Tj= 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 @ $I_S \leq I_{DM}$, di/dt ≤ 100 A/µs, $V_{DD} \leq V_{DSS}$, $T_J \leq 150°C$	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



Mechanical Outline CoolPack™1

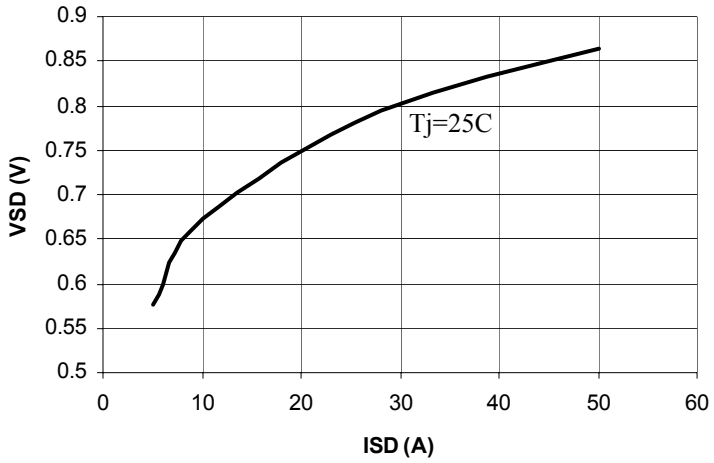
Note: Pin-out shown for standard polarity

Revision 1

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 V, I_D = 250 μA	100			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250 uA	2.0		4.0	V
Gate-to-Source Leakage Current	I_{GSS}	V_{GS} = ± 20V_{DC}, V_{DS} = 0 T_J = 25°C T_J = 125°C			 ±100 ±200	nA
Drain-to-Source Leakage Current (Zero Gate Voltage Drain Current)	I_{DSS}	V_{DS} = 100 V, V_{GS} = 0 V,T_J = 25°C V_{DS} = 80 V, V_{GS} = 0 V, T_J = 125°C			25 15	μA mA
Static Drain-to-Source On-State Resistance (1)	$R_{DS(on)}$	V_{GS}= 10V, I_D= 28 A		0.022	0.025	Ω
Forward Transconductance (1)	g_{fs}	V_{DS} ≥ 15 V; I_D = 28 A	20	-		S
Input Capacitance Output Capacitance Reverse Transfer Capacitance	C_{iss} C_{oss} C_{rss}	V_{GS} = 0 V, V_{DS} = 25 V, f = 1 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 V, V_{DS} = 50 V, I_D = 28 A, R_G = 2.5 Ω		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 V, V_{DS} = 80V, I_D = 28A		115 10 66		nC
Body Diode Forward Voltage (1)	V_{SD}	I_S = 28A, V_{GS} = 0 V		0.8	0.87	V

Body Diode typical Forward Voltage



Notes

(1) Pulse test, t ≤ 300 μs, duty cycle δ ≤ 2%

(2) Microsemi Corp. does not manufacture the mosfet die; contact company for details.