Microsemi

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UPFS320P

PRELIMINARY

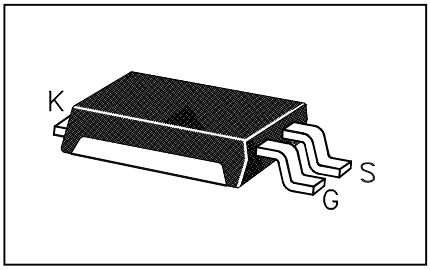
Features

- POWERMITE 3 Surface Mount Package
- MOSFET with Schottky Rectifier for reverse voltage blocking
- Single 3 leaded device replaces 2 individual components
- Integral Heat Sink / Locking Tabs
- Supplied in 16mm Tape and Reel – 6000 units/reel
- Superior Low Thermal and Electrical capability

SURFACE MOUNT
P – CHANNEL
MOSKEY ®

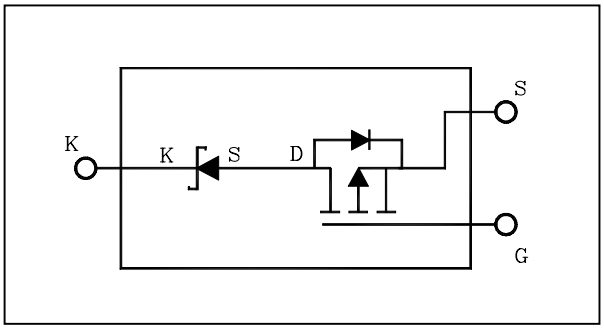
Mechanical Characteristics

- Footprint Area of 16.51 mm^2
- Case: Molded Epoxy
- Meets UL94VO at 1/8 inch
- Weight: 72 milligrams
- Lead and Mounting Temperatures: 260°C max for 10 seconds



Description

The MOSKEY® combines a MOSFET with a Schottky Rectifier to provide reverse blocking capability in a single three leaded package. This device is well suited for applications such as battery chargers and switching where the intrinsic source-drain diode is an undesirable feature.



Note: Vks = Vds (Mosfet) + Vf (Rectifier)

Absolute Maximum Ratings at 25°C

RATING	SYMBOL	VALUE	UNIT
Cathode-to-Source Voltage	VKSS	+/- 20	Vdc
Gate-to-Source Voltage	VGS	+/- 8	Vdc
Cathode Current:			
Continuous @ TA=25°C	IK	3.0	Adc
Single Pulsed	IKM	11.0	Apk
Total Power Dissipation	PD (1)	2.0	Watts
Storage Temperature	T stg	-55 to 150°C	C
Operating Temperature	T op	-55 to 150°C	C

Thermal Characteristics

Thermal Resistance:			
Junction to Tab	Rjtab	5	°C/Watt
(1)Junction-to-tab	Rja (1)	60	°C/Watt
(2)Junction-to-ambient	Rja (2)	120	°C/Watt

(1) Mounted on 2" square by 0.06' thick FR4 board with a 1" x1" square 2 ounce copper pattern.
(2) Mounted on 0.06 thick FR4 board, using recommended footprint, with 2 ounce copper

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Electrical Characteristics at 25°C

ELECTRICAL CHARACTERISTICS (TA = 25 C unless otherwise noted)						
Symbol	**Parameter**	**Conditions**	**Min**	**Typ**	**Max**	**Units**
	OFF CHARACTERISTICS					
BVKSS	Cathode-Source Breakdown Voltage	VGS= 0V; IK = 250uA	20			V
IKSSF	Zero Gate Voltage Cathode Current: Forward	VKS= -16V, VGS = 0V			1	uA
IKSSR	Zero Gate Voltage Cathode Current:Reverse	VKS= +16V, VGS = 0V			1.5	mA
IGSS	Gate-Body Leakage Current	VGS= +/- 8V, VDS = 0V			100	nA
	ON CHARACTERISTICS (pulsed 500us max, duty cycle < 2%)					
VGS(TH)	Gate Threshold Voltage	VDS $\geq$ VGS; IK = 250uA	0.4	0.6	1	V
DELTA VGS(TH)/ TJ	Gate Threshold Voltage Temp Coefficient	IK = 250uA, Reference to 25C		2.1		mV/C
VKS (ON)	Static Cathode-Source On Voltage	VGS = 4.5 V; IK = 3A			700	mV
VKS (ON)	Static Cathode-Source On Voltage	VGS = 4.5 ; IK = 1A			400	mV
IK(ON)	On State Cathode Current	VGS = 4.5 V; VKS = 5V	10			A
Gfs	Forward Transconductance	VDS = 10 V; IK = 3 A		6.5		S
	DYNAMIC CHARACTERISTICS					
Ciss	Input Capacitance	VKS = 10 V; VGS = 0V, F = 1MHz		700		pF
Coss	Output Capacitance	VKS = 10 V; VGS = 0V, F = 1MHz		270		pF
Crss	Reverse Transfer Capacitance	VKS = 10 V; VGS = 0V, F = 1MHz		100		pF
	SWITCHING CHARACTERISTICS					
Td(ON)	Turn On Delay Time	VDD = 5V, IK = 1A, VGS = 4.5V, Rg = 6 Ω		8	16	ns
Tr	Turn On Rise Time	VDD = 5V, IK = 1A, VGS = 4.5V, Rg = 6 Ω		24	38	ns
Td(OFF)	Turn Off Delay time	VDD = 5V, IK = 1A, VGS = 4.5V, Rg = 6 Ω		50	80	ns
Tf	Turn Off Fall time	VDD = 5V, IK = 1A, VGS = 4.5V, Rg = 6 Ω		29	45	ns
Qg	Total Gate Charge	VDS = 5V, IK = 3A, VGS = 4.5V		9.5	13	nC
Qgs	Gate-Source Charge	VDS = 5V, IK = 3A, VGS = 4.5V		1.3		nC
Qgd	Gate-Cathode Charge	VDS = 5V, IK = 3A, VGS = 4.5V		2.2		nC

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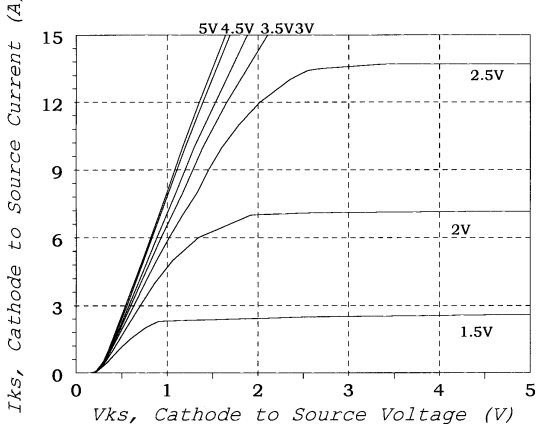
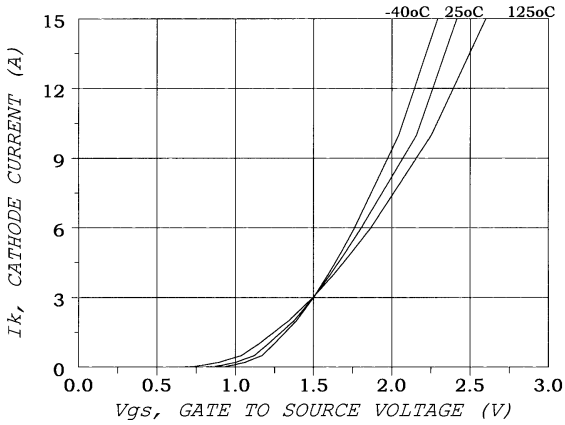
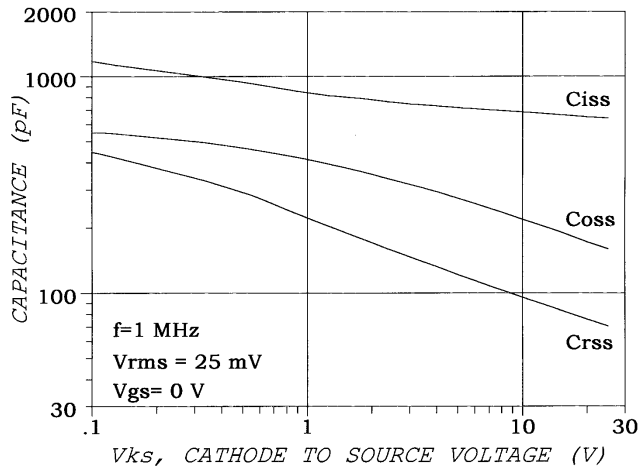
On-Region Characteristics



Transfer Characteristics



Capacitance Characteristics



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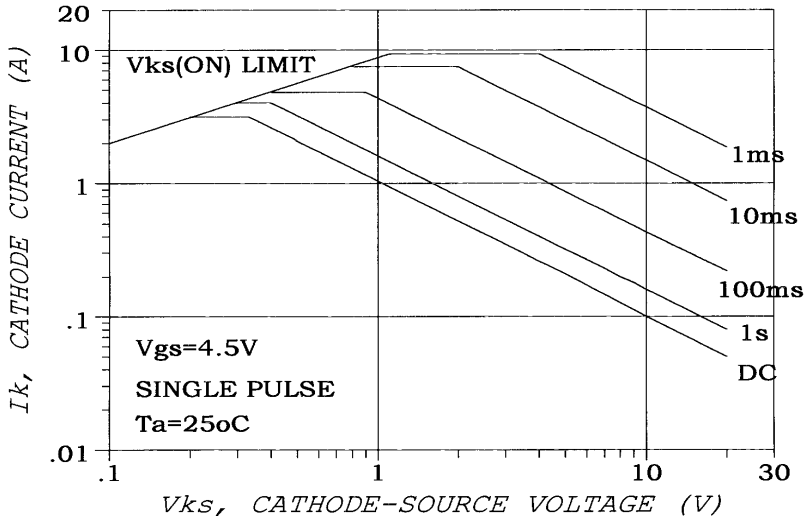
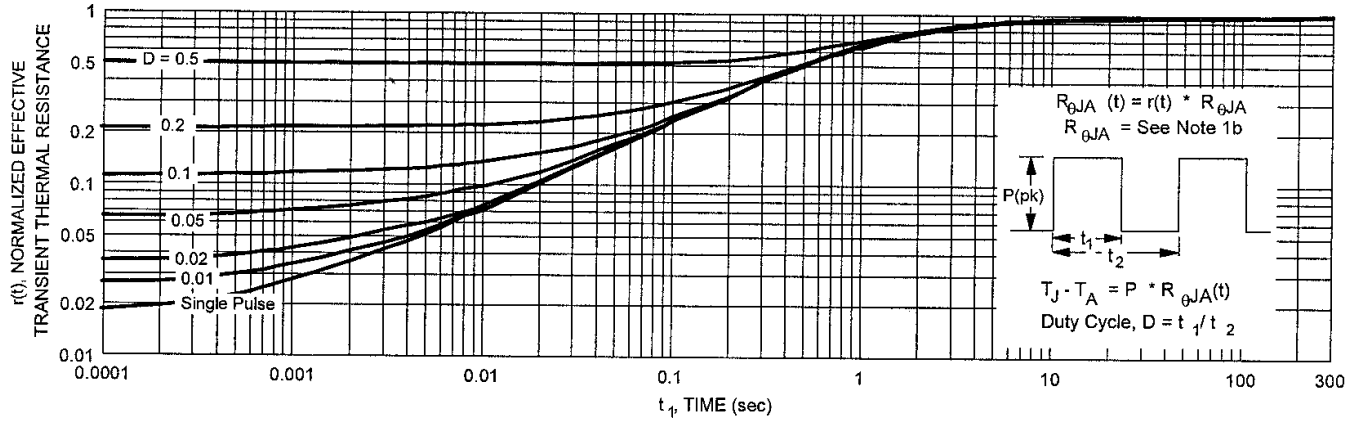
Maximum Safe Operating Area





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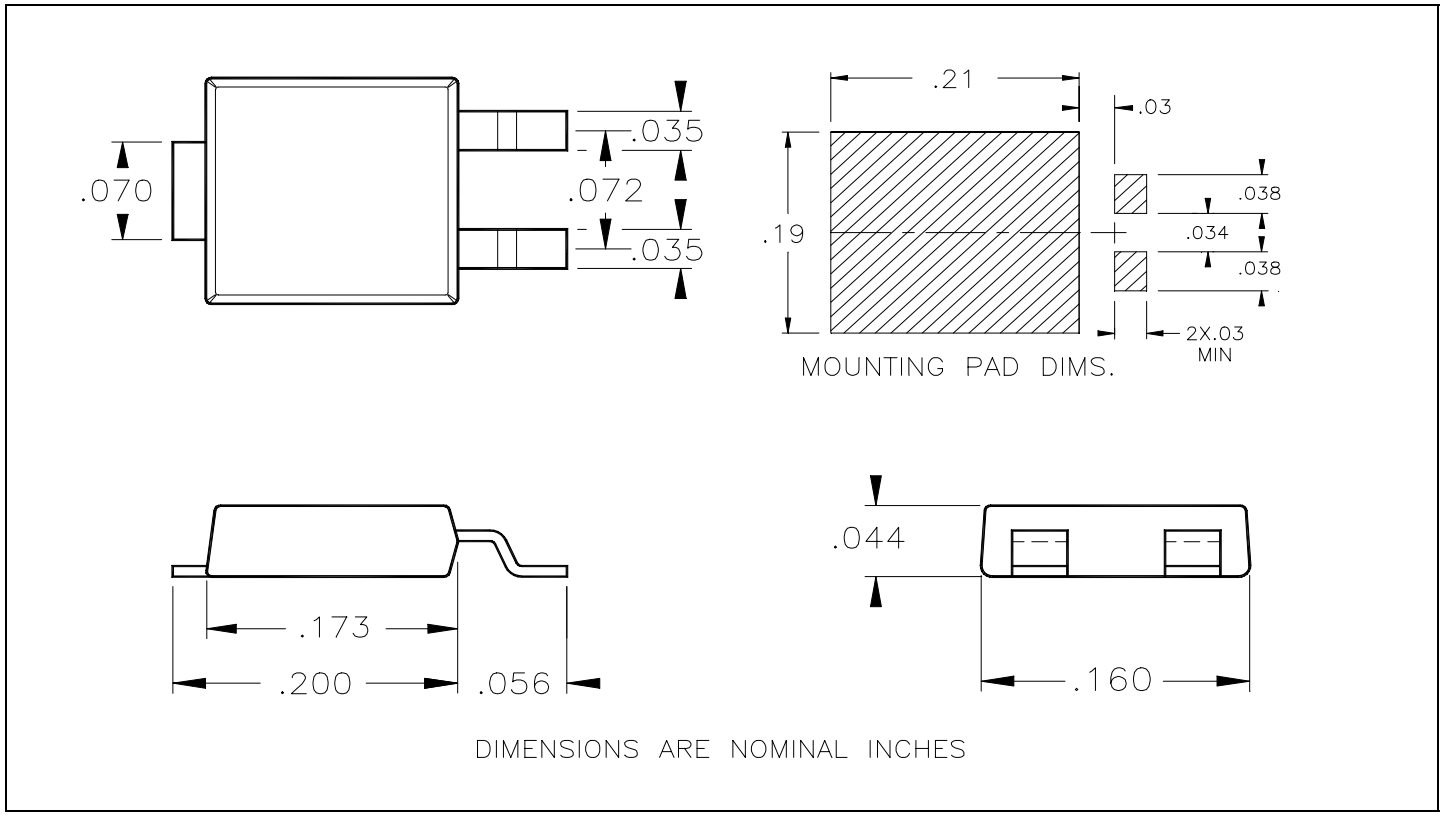

MECHANICAL SPECIFICATIONS