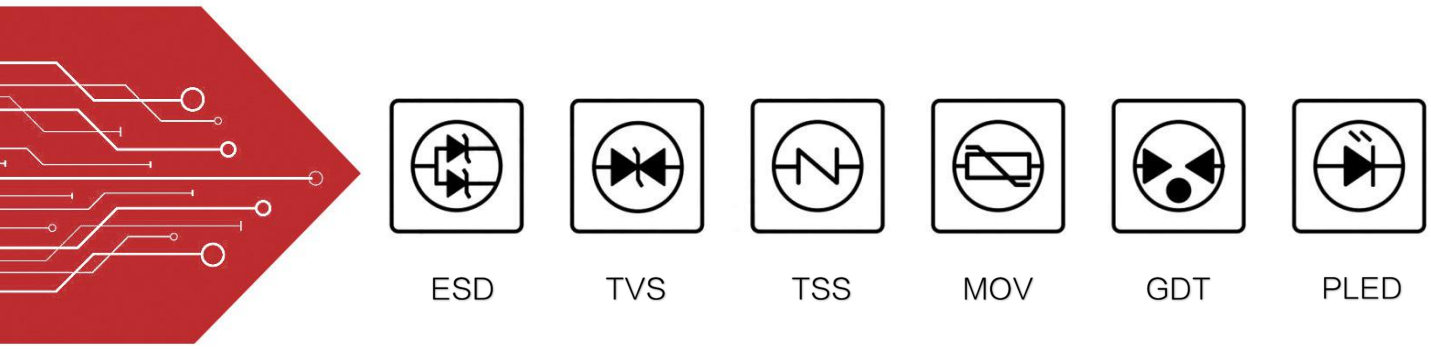
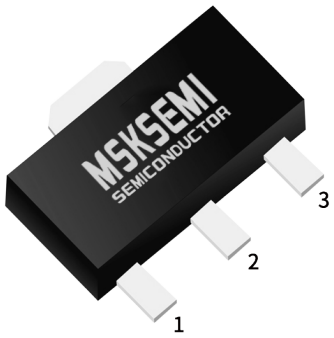
MSKSEMI
SEMICONDUCTOR



Product data sheet

www.msksemi.com



SOT-89

Package	Pin assignment		
	1	2	3
SOT-89	T1	T2	G

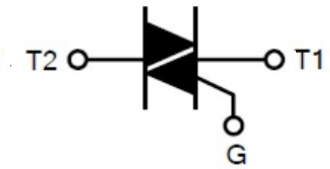
FEATURES

- Direct interfacing to logic level ICs
- Direct interfacing to low power gate drive circuits and microcontrollers
- High blocking voltage capability
- Planar passivated for voltage ruggedness and reliability
- Triggering in all four quadrants
- Very sensitive gate

APPLICATIONS

- General purpose bi-directional switching and phase control application.
- Air conditioner indoor fan control
- General purpose motor control
- General purpose switching

SYMBOL:



ABSOLUTE

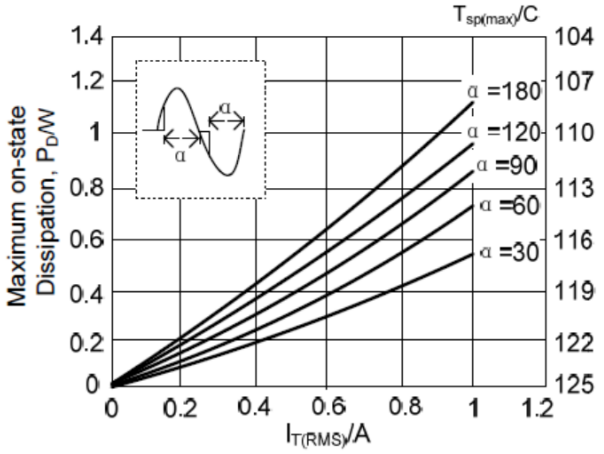
PARAMETER	SYMBOL	VALUE		UNIT
Repetitive Peak Off-State Voltages	V_{DRM}, V_{RRM}	600		V
RMS on-State Current	$I_{T(RMS)}$	1		A
Non-Repetitive Peak On-State Current	I_{TSM}	16		A
I^2t for fusing	I^2t	1.28		A^2s
Repetitive rate of rise of on-state current after triggering	dIT/dt	I	50	A/uS
		II	50	
		III	50	
		IV	10	
Peak gate current	I_{GM}	2		A
Peak Gate Voltage	V_{GM}	5		V
Peak Gate Power	P_{GM}	5		W
Average Gate Power	$P_{G(AV)}$	0.5		W
Operating junction temperature	T_J	+125		℃
Storage Temperature	T_{STG}	-40 ~ +150		℃

ELECTRICAL CHARACTERISTICS (TJ=25°C)

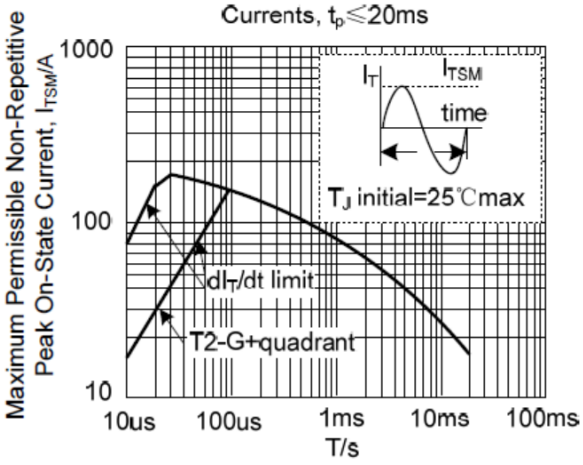
PARAMETER	SYMBOL	TEST CONDITIONS		MIN	MAX	UNITS
Peak Repetitive Forward or Reverse Blocking Current	I_{DRM} I_{RRM}	V_{AK} = Rated V_{DRM} or V_{RRM};			0.5	mA
Gate Trigger Current	I_{GT}	V_D=12V, R_L=100Ω	I		5.0	mA
			II		5.0	
			III		5.0	
			IV		10	
Gate Trigger Voltage	V_{GT}	V_D=12V, I_T=100mA			1.5	V
Peak Forward On-State Voltage	V_{TM}	IT=2.0A			1.5	V
Latch Current	I_L	V_D=12V I_G=0.1A,	I		5.0	mA
			II		8.0	
			III		5.0	
			IV		5.0	
Holding Current	I_H	V_D=12V ,I_G=0.1A			5	mA
Gate Non-Trigger Voltage	V_{GD}	V_D=V_{DRM}		0.2		V
Critical Rate of Rise of Off-State Voltage	dV/dt	V_D=67%V_{DRM}, R_{GK}=1kΩ		5		V/μs

ELECTRICAL CHARACTERISTIC CURVE

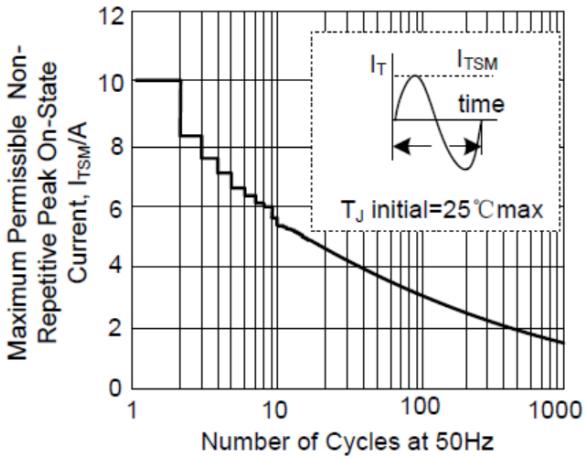
Maximum on-state Dissipation vs. RMS On-state Current, $I_{T(RMS)}$, Where α =conduction Angle



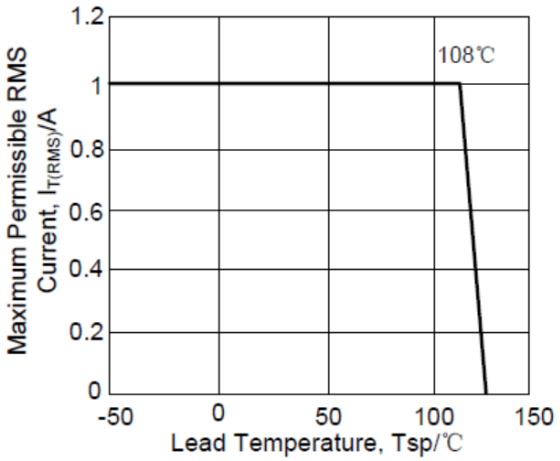
Maximum Permissible Non-repetitive Peak On-state Current vs. Pulse Width t_p, for Sinusoidal Currents, t_p≤20ms



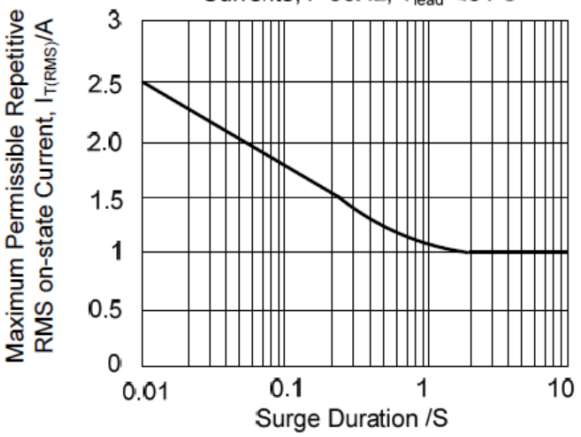
Maximum Permissible Non-Repetitive Peak On-State Current vs. Number of Cycles, for Sinusoidal Currents



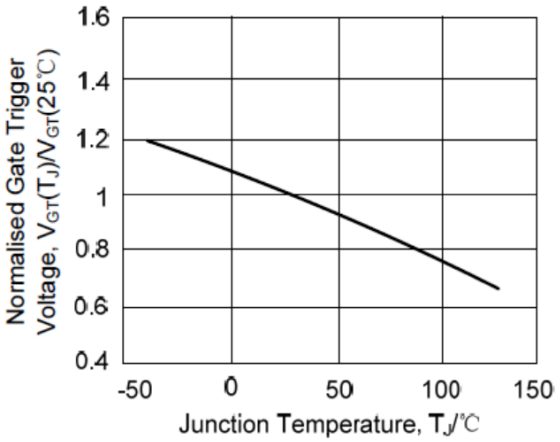
Maximum Permissible RMS Current $I_{T(RMS)}$ vs. Lead Temperature



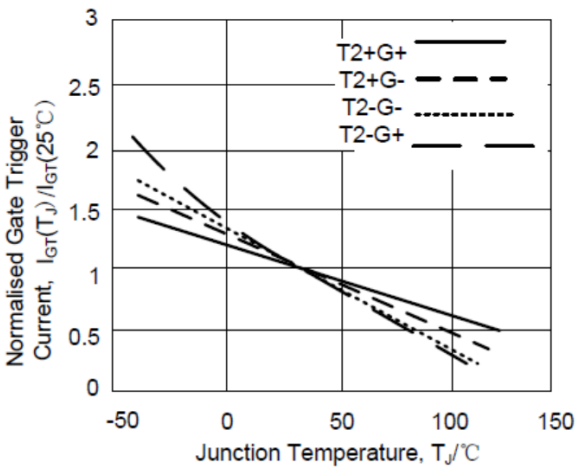
Maximum Permissible Repetitive RMS on-state Current vs. Surge Duration, for Sinusoidal Currents, f=50Hz; T_{lead}≤51℃



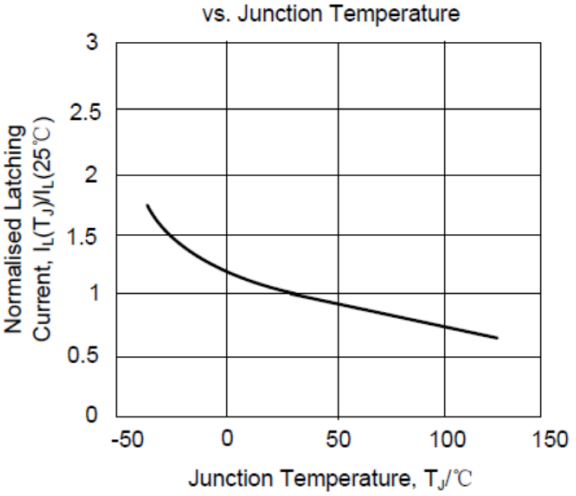
Normalised Gate Trigger Voltage vs. Junction Temperature



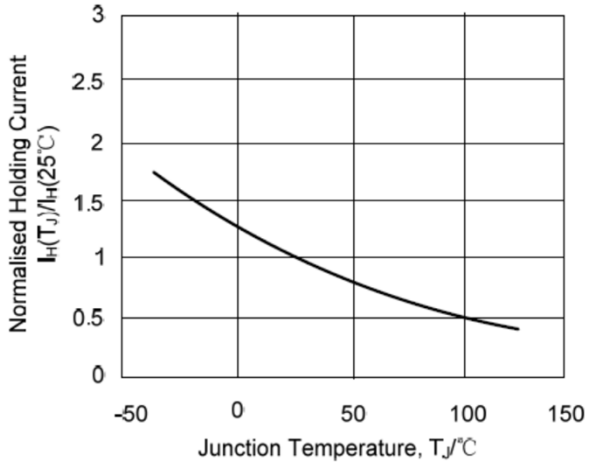
Normalised Gate Trigger Current vs. Junction Temperature



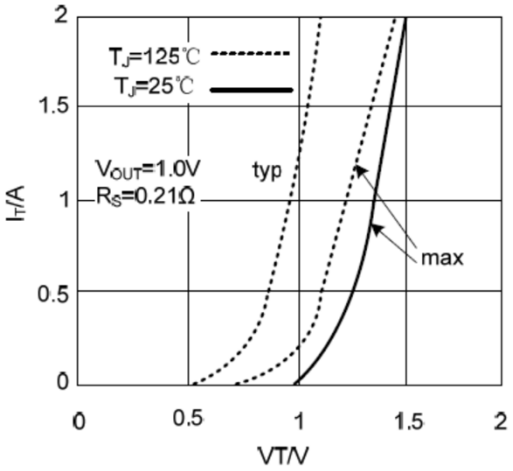
Normalised Latching Current vs. Junction Temperature



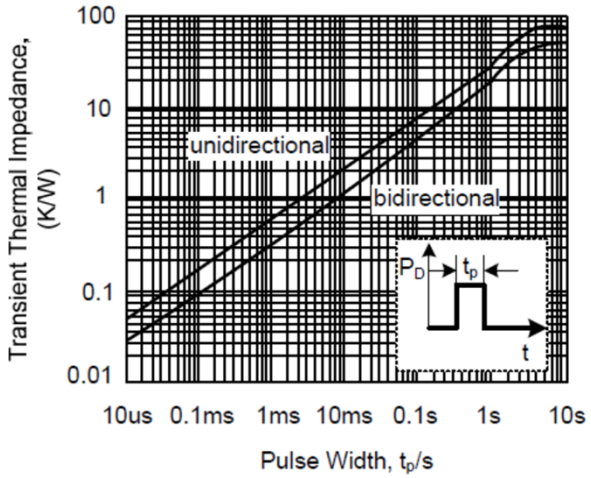
Normalised Holding Current
vs. Junction Temperature



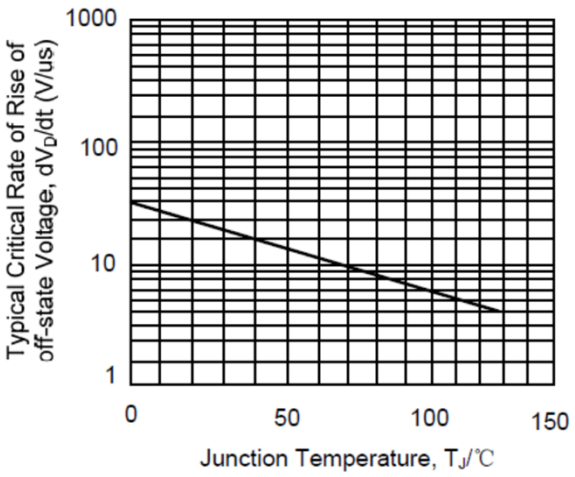
Typical and Maximum
On-State Characteristic



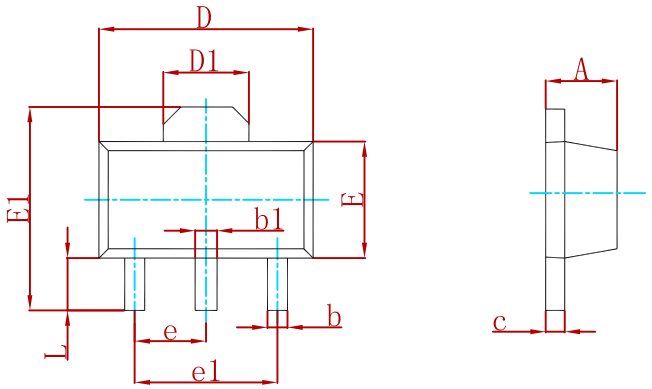
Transient Thermal Impedance
vs. Pulse Width



Typical Critical Rate of Rise of off-state
Voltage vs. Junction Temperature

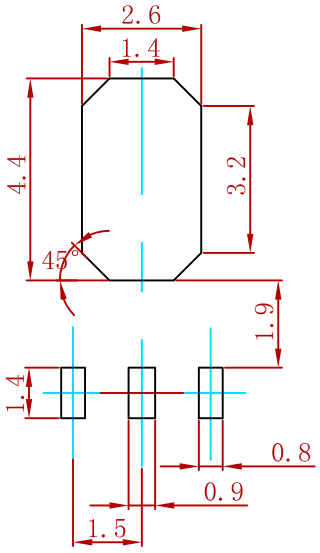


PACKAGE MECHANICAL DATA



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.400	1.600	0.055	0.063
b	0.320	0.520	0.013	0.020
b1	0.400	0.580	0.016	0.023
c	0.350	0.440	0.014	0.017
D	4.400	4.600	0.173	0.181
D1	1.550 REF.		0.061 REF.	
E	2.300	2.600	0.091	0.102
E1	3.940	4.250	0.155	0.167
e	1.500 TYP.		0.060 TYP.	
e1	3.000 TYP.		0.118 TYP.	
L	0.900	1.200	0.035	0.047

Suggested Pad Layout



Note:
1.Controlling dimension:in millimeters.
2.General tolerance:±0.05mm.
3.The pad layout is for reference purposes only.

REEL SPECIFICATION

P/N	PKG	QTY
BT131-600	SOT-89	1000

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