ACE1P60B

P-Channel Enhancement Mode Field Effect Transistor

Description

The ACE1P60B uses advanced trench technology to provide excellent $R_{DS(ON)}$ and low gate charge . This device is suitable for use as a load switch or small power switching applications.

Features

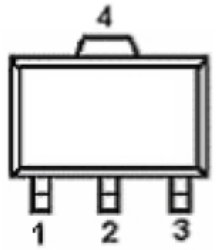
- -60V/-2.4A
- $R_{DS(ON)}$=140mΩ (typ.) @ V_{GS}=10V
- $R_{DS(ON)}$=180mΩ (typ.) @ V_{GS}=4.5V

Absolute Maximum Ratings

Parameter		Symbol	Max	Unit
Drain-Source Voltage		V_{DSS}	-60	V
Gate-Source Voltage		V_{GSS}	±20	V
Drain Current (Continuous)	T_A=25℃	I_D	-2.4	A
	T_A=70℃		-1.5	
Drain Current (Pulsed)		I_{DM}	-9.6	A
Power Dissipation	T_A=25℃	P_D	1.47	W
	T_A=70℃		0.94	
Operating temperature / storage temperature		T_J/T_{STG}	-55~150	℃

Packaging Type

SOT-89-3



Pin Configuration

Pin Number	Description
1	GND
2	Vout
3	Vin
4	GND

Ordering information

ACE1P60B XX + H

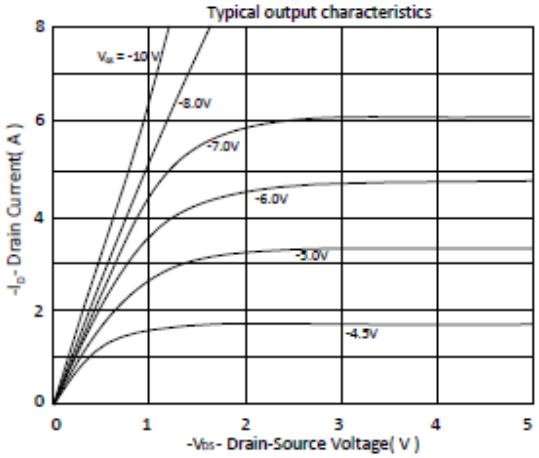
- Halogen - free
- Pb - free
- AM：SOT-89-3

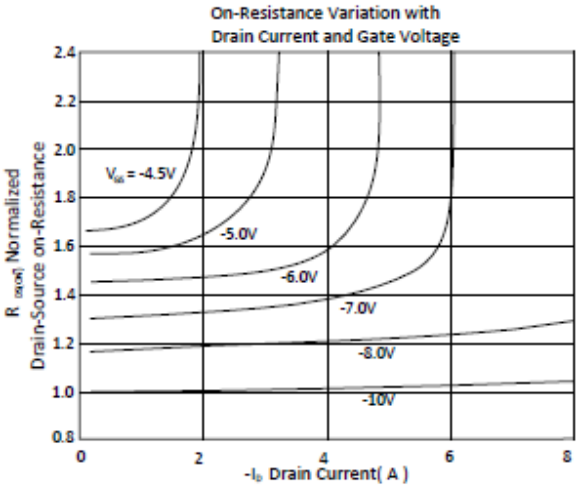
Electrical Characteristics

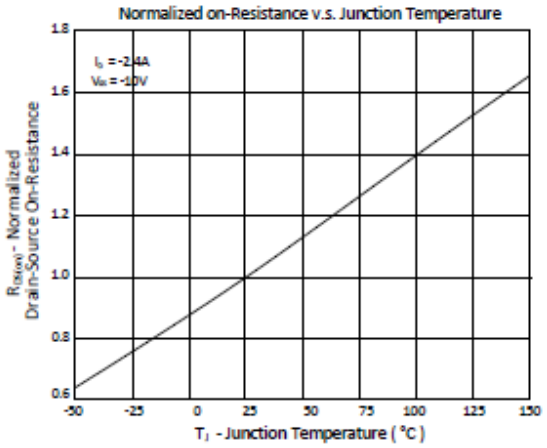
T_A=25℃, unless otherwise specified.

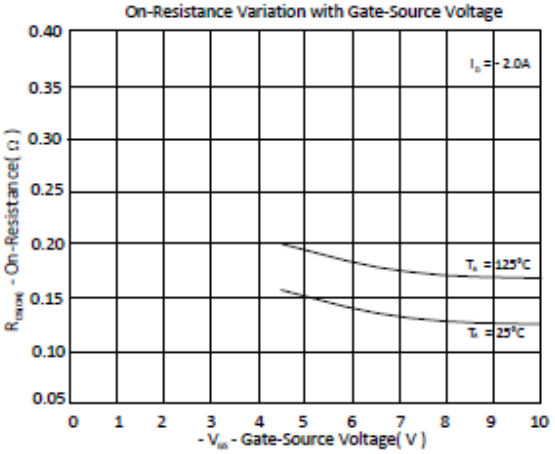
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = -250μA	-60			V
Zero Gate Voltage Drain Current	I_{DSS1}	V_{DS} = -48V, V_{GS} = 0V			-1	μA
Gate Threshold Voltage	$V_{GS(TH)}$	V_{GS} = V_{DS} , I_{DS}= -250μA	-1	-1.75	-2.5	V
Gate Leakage Current	I_{GSS}	V_{GS}= ±20V , V_{DS}=0V			±100	nA
Drain-Source On-state Resistance	$R_{DS(on)}$	V_{GS} = -10V , I_D= -1.5A		140	180	mΩ
		V_{GS} = -4.5V , I_D= -1A		180	266	
Forward Trans Conductance	g_{FS}	V_{DS}= -5V , I_D= -2A		5.3		S
Diode Forward Voltage	V_{SD}	I_{SD}= -1A , V_{GS}= 0V			-1.2	V
Maximum Body-Diode Continuous Current	I_S				-2.4	A
Switching						
Total Gate Charge	Q_g	V_{DS}= -48V, I_D= -2A, V_{GS}= -10V		12.3		nC
Gate-Source Charge	Q_{gs}			1.6		nC
Gate-Drain Charge	Q_{gd}			2.4		nC
Turn-on Delay Time	$t_{d(on)}$	V_{DD}= -10V,I_D= -1A, V_{GS}= -10V,R_G= 6Ω		12		ns
Turn-on Rise Time	t_r			20		ns
Turn-off Delay Time	$t_{d(off)}$			20		ns
Turn-off Fall Time	t_f			25		ns
Dynamic						
Input Capacitance	C_{iss}	V_{DS}=-30V,V_{GS}= 0V, f= 1.0MHz		1030		pF
Output Capacitance	C_{oss}			66		pF
Reverse Transfer Capacitance	C_{rss}			48		pF

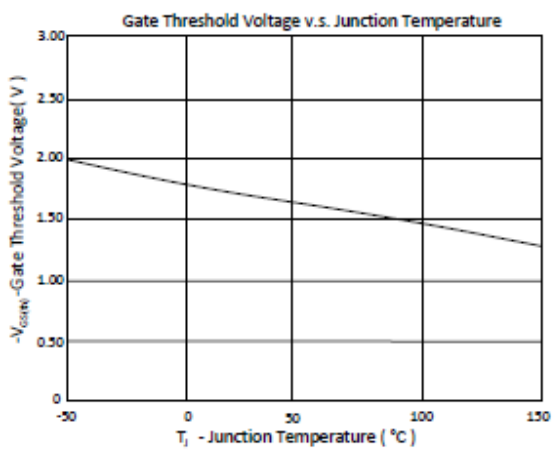
Typical Performance Characteristics

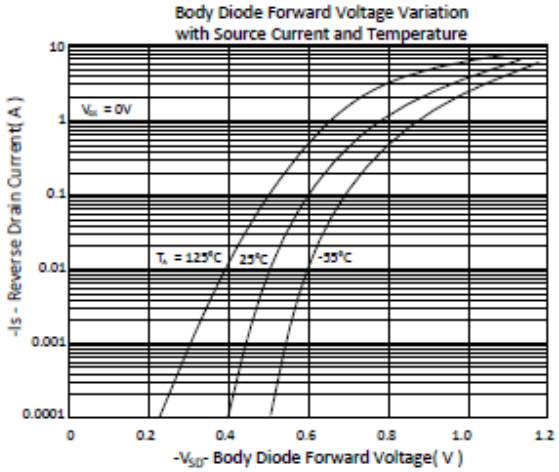




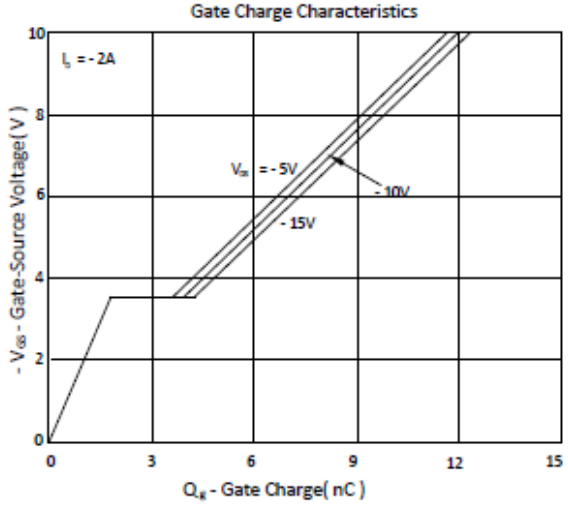




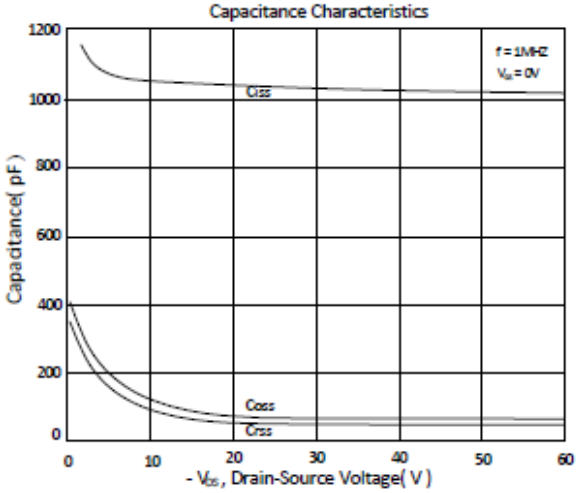




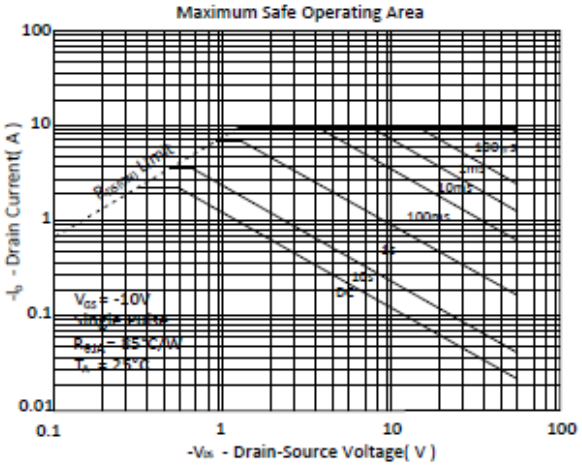
Gate Charge Characteristics



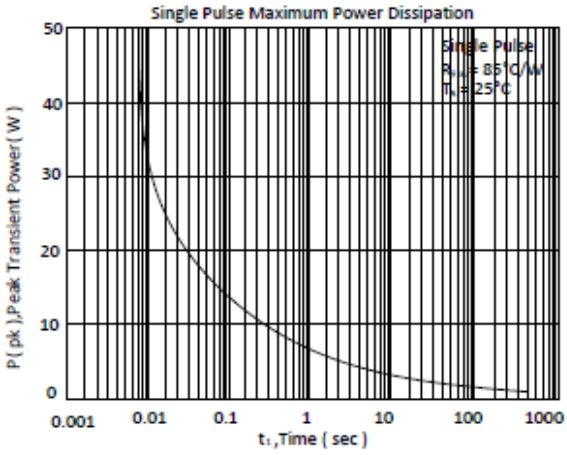
Capacitance Characteristics



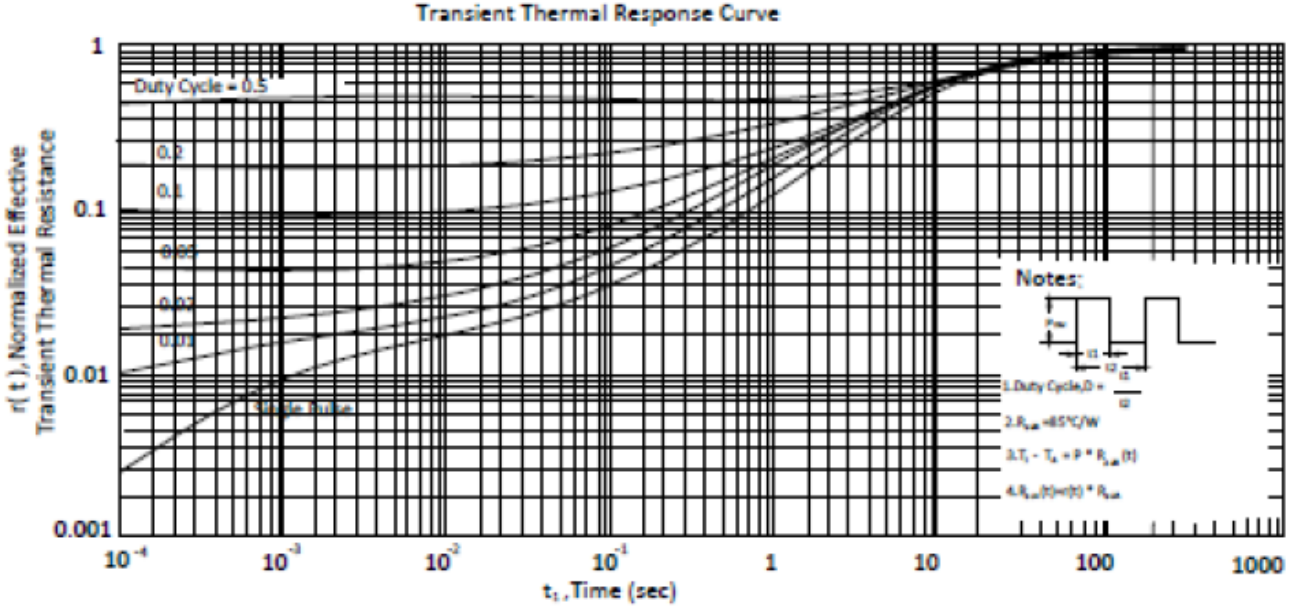
Maximum Safe Operating Area



Single Pulse Maximum Power Dissipation

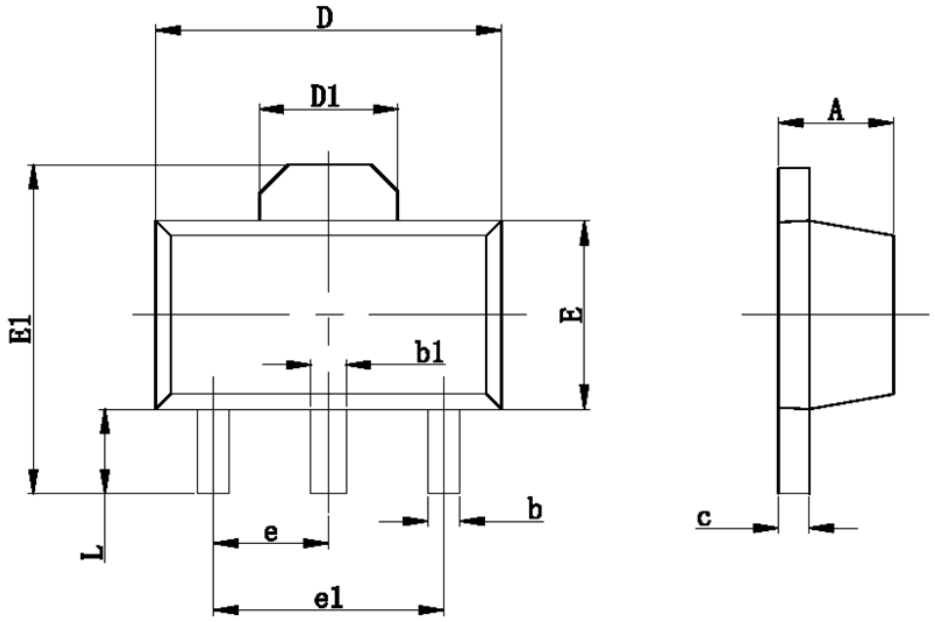


Transient Thermal Response Curve



Packing Information

SOT-89-3



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	0.197
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

Notes

ACE does not assume any responsibility for use as critical components in life support devices or systems without the express written approval of the president and general counsel of ACE Electronics Co., LTD. As sued herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, and shoes failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in a significant injury to the user.
2. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.