ACE11541B

P-Channel Enhancement Mode Field Effect Transistor

Features

- V_{DS}= -20V , I_D=-6A
- $R_{DS(ON)}$@ V_{GS} = -4.5V , TYP= 24mΩ
- $R_{DS(ON)}$@ V_{GS} = -2.5V , TYP= 30mΩ

General Description

- load switch
- other general applications

Absolute Maximum Ratings@T_A=25℃ unless otherwise noted

Parameter		Symbol	Max	Unit
Drain-Source Voltage		V_{DSS}	-20	V
Gate-Source Voltage		V_{GSS}	±10	V
Drain Current (Continuous)*AC	T_A=25℃	I_D	-6.0	A
	T_A=70℃		-4.9	
Drain Current (Pulsed)*B		I_{DM}	-20	A
Power Dissipation	T_A=25℃	P_D	1.7	W
Operating temperature / Storage temperature		T_J/T_{STG}	-55~150	℃

A: The value of $R_{\theta JA}$ is measured with the device mounted on 1in^2 FR-4 board with 2oz. Copper, in a still air environment with T_A=25°C. The value in any given application depends on the user's specific board design.

B: Repetitive rating, pulse width limited by junction temperature.

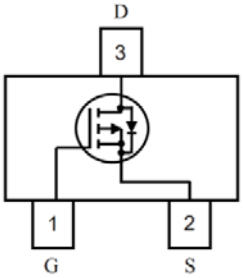
C: The current rating is based on the t≤ 10s junction to ambient thermal resistance rating.

Thermal Resistance Ratings

Parameter		Symbol	Typical	Maximum	Unit
Maximum Junction-to-Ambient	t ≤ 5s	R_{thJA}	78	100	℃/W

Packaging Type

TSOT-23-3



Ordering information

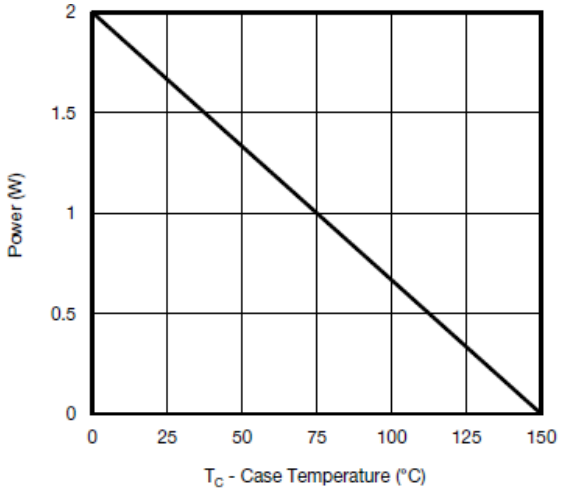
ACE11541B XX + H

- Halogen - free
- Pb - free
- BMS: TSOT-23-3

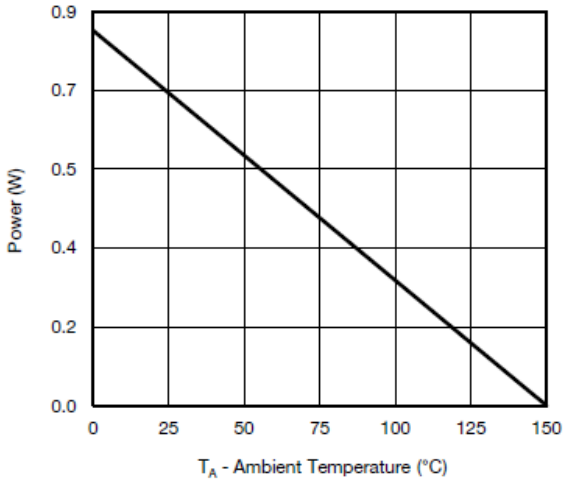
Electrical Characteristics T_A=25°C, unless otherwise specified.

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=-250μA	-20			V
Zero gate voltage drain current	I_{DSS}	V_{DS}=-20V, V_{GS}=0V			-1	μA
Gate threshold voltage	$V_{GS(th)}$	V_{GS}=V_{DS}, I_{DS}=-250μA	-0.4	-0.6	-1.2	V
Gate leakage current	I_{GSS}	V_{GS}=±10V, V_{DS}=0V			±100	μA
Drain-source on-state resistance	$R_{DS(ON)}$	V_{GS}=-4.5V, I_D=-5A		30	36	mΩ
		V_{GS}=-2.5V, I_D=-2A		40	45	
Forward Trans conductance	g_{FS}	V_{DS} =-5V, I_D=-4A		10		S
Diode forward voltage	V_{SD}	I_{SD}=-1A, V_{GS}=0V			-1.2	V
Diode Forward Current	I_S	T_C =25°C			-4	A
Switching						
Total Gate Charge	Q_g	V_{GS}=-4.5V, V_{DS}=-10V, I_D=-4.5A		13.8		nC
Gate-Source Charge	Q_{gs}			1.9		
Gate-Drain Charge	Q_{gd}			3		
Turn-on Delay Time	$t_{d(on)}$	V_{DS}=-10V, R_L=2.8Ω I_D=-3.6A,V_{GS}=-4.5V R_G=1Ω		22		ns
Turn-on Rise Time	t_r			21		
Turn-off Delay Time	$t_{d(off)}$			62		
Turn-off Fall Time	t_f			14		
Dynamic						
Input Capacitance	Ciss	V_{GS}=0V, V_{DS}=-10V, f=1.0MHz		1200		pF
Output Capacitance	Coss			120		
Reverse Transfer Capacitance	Crss			117		

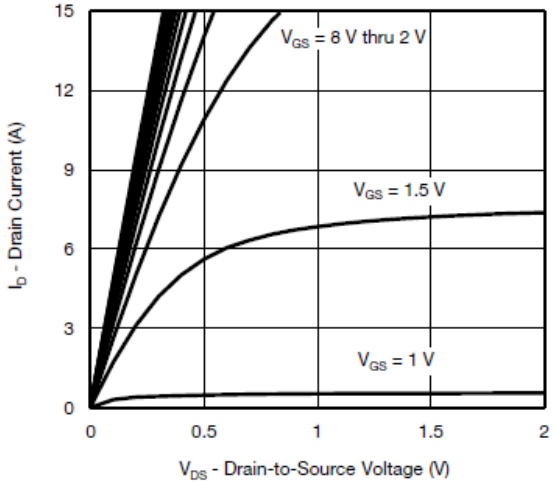
Typical Performance Characteristics



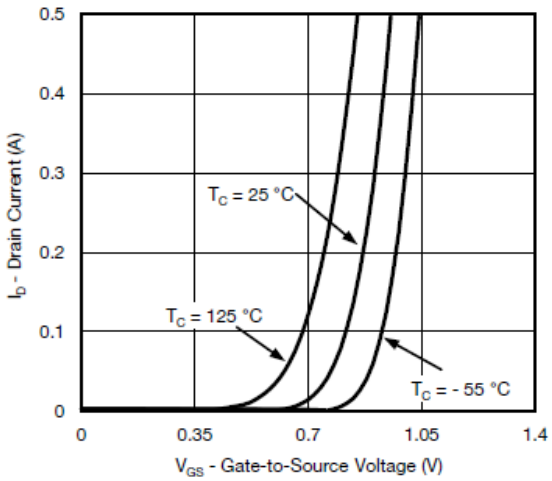
Power Junction-to-Case



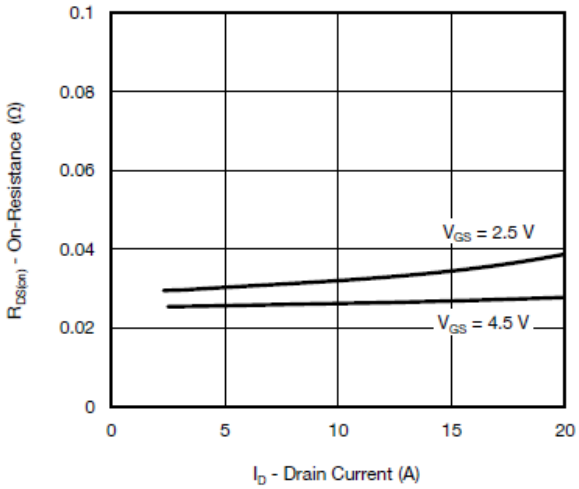
Power Junction-to-Ambient



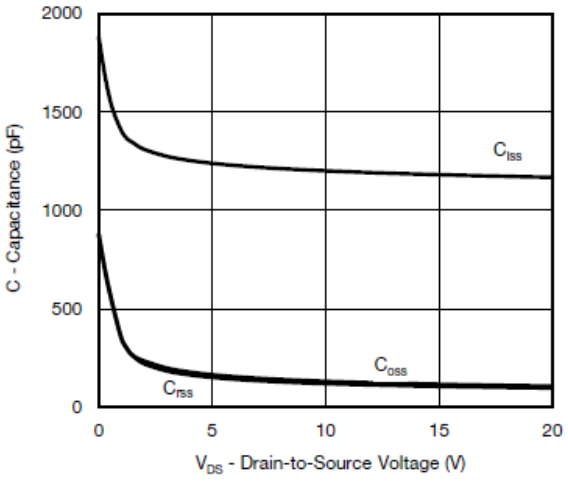
Output Characteristics



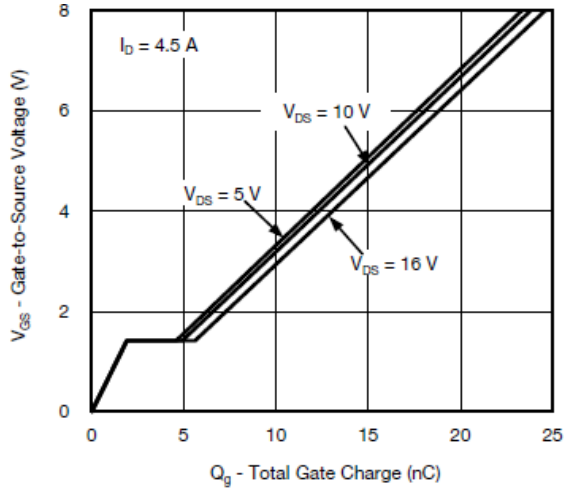
Transfer Characteristics



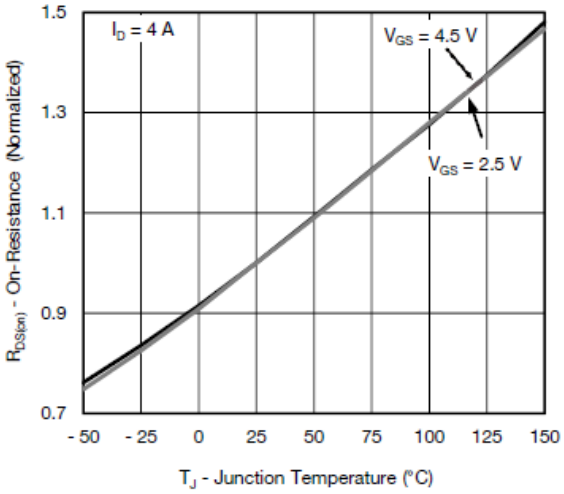
On-Resistance vs. Drain Current



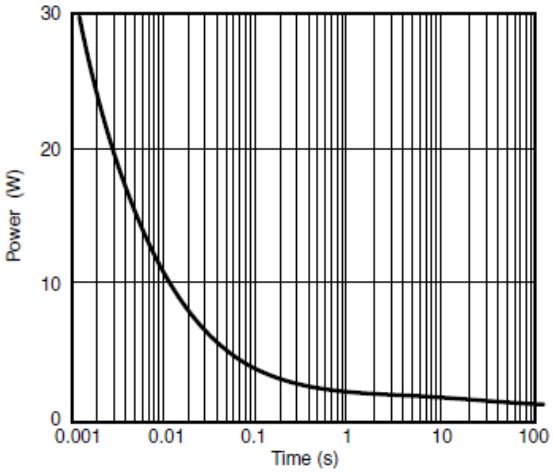
Capacitance



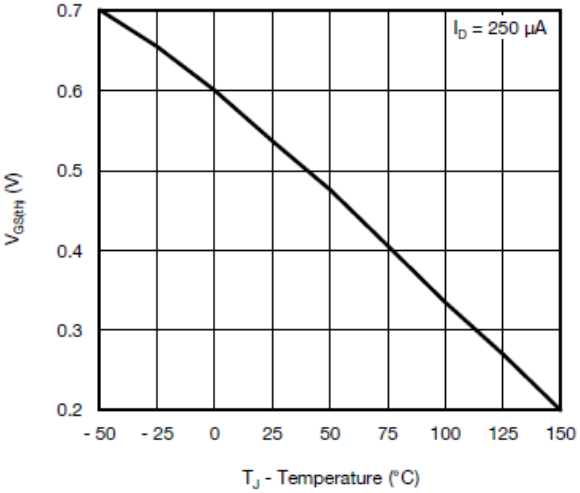
Gate Charge



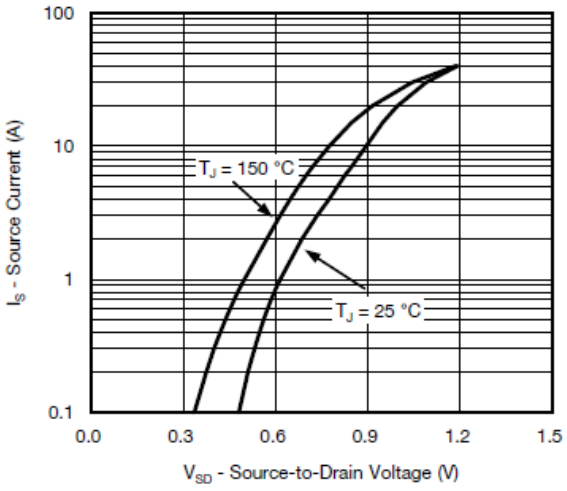
On-Resistance vs. Junction Temperature



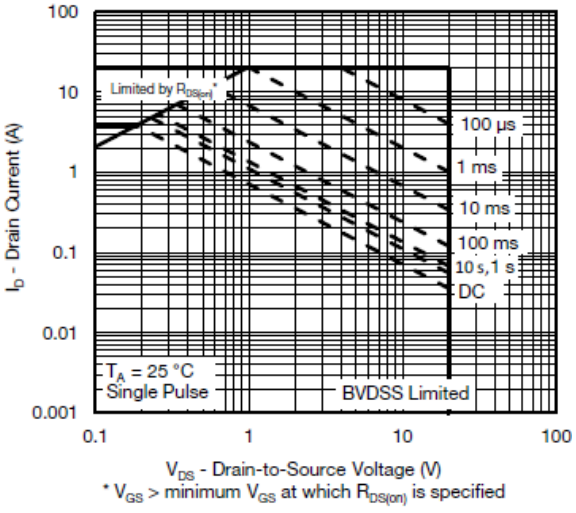
Single Pulse Power, Junction-to-Ambient



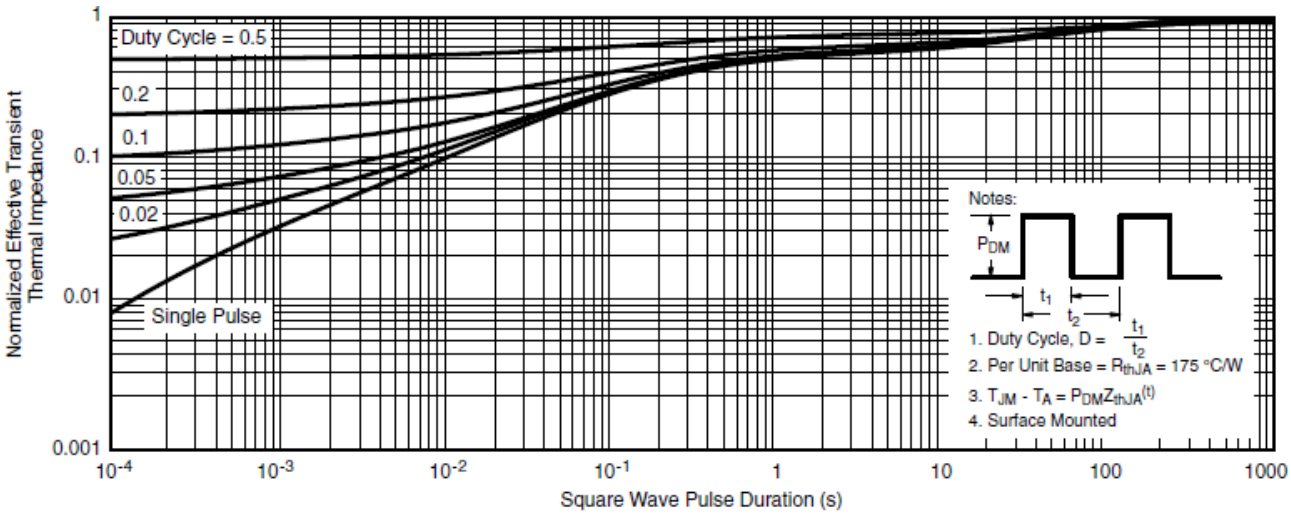
Threshold Voltage



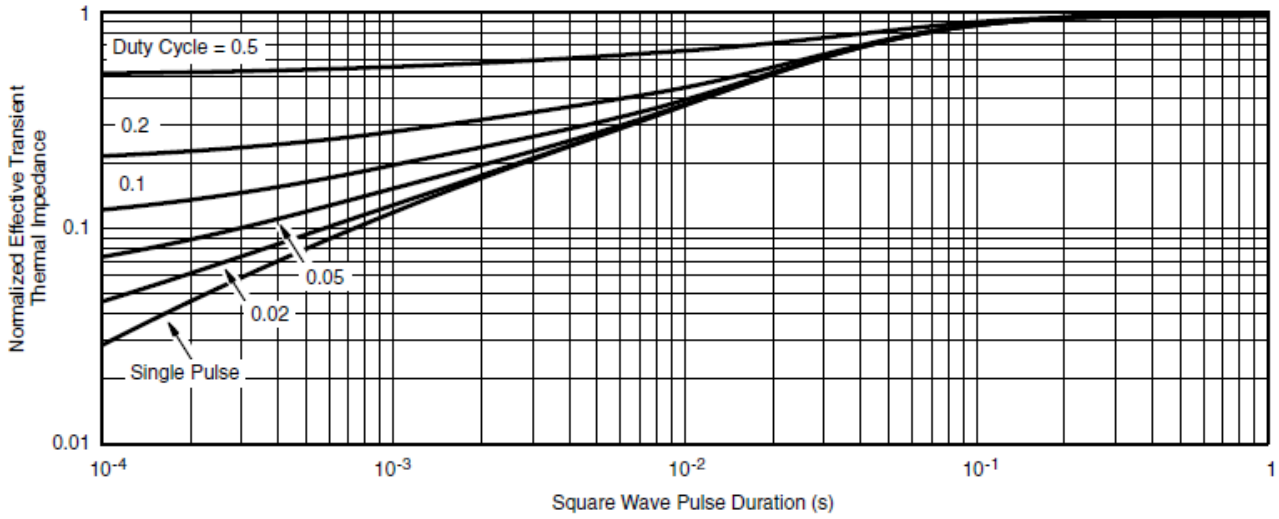
Soure-Drain Diode Forward Voltage



Safe Operating Area, Junction-to-Ambient



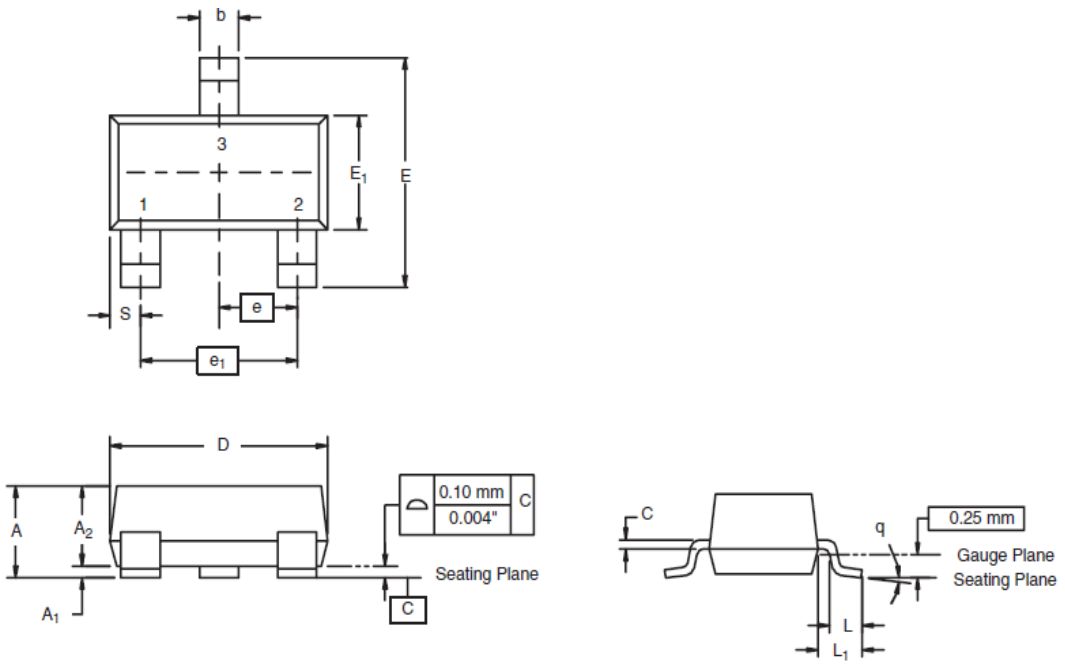
Normalized Thermal Transient Impedance, Junction-to-Ambient



Normalized Thermal Transient Impedance, Junction-to-Foot

Packing Information

SOT-23-3



Dim	MILLIMETERS		INCHES	
	Min	Max	Min	Max
A	0.89	1.12	0.035	0.044
A_1	0.01	0.10	0.0004	0.004
A_2	0.88	1.02	0.0346	0.040
b	0.35	0.50	0.014	0.020
c	0.085	0.18	0.003	0.007
D	2.80	3.04	0.110	0.120
E	2.10	2.64	0.083	0.104
E_1	1.20	1.40	0.047	0.055
e	0.95 BSC		0.0374 Ref	
e_1	1.90 BSC		0.0748 Ref	
L	0.40	0.60	0.016	0.024
L_1	0.64 Ref		0.025 Ref	
S	0.50 Ref		0.020 Ref	
q	3°	8°	3°	8°

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.