

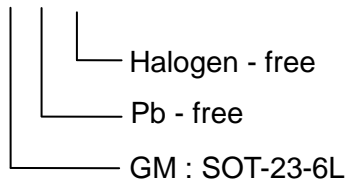


ACE6344B

N&P-Channel Enhancement Mode MOSFET

Ordering information

ACE6344B XX + H



Electrical Characteristics (N-Channel)($T_A=25^\circ\text{C}$ Unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	20			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=20V, V_{GS}=0V$			1	μA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.5	0.75	1.2	V
Gate Leakage Current	I_{GSS}	$V_{GS}=\pm 12V, V_{DS}=0V$			± 100	nA
Drain-Source On Resistance	$R_{DS(ON)}$	$V_{GS}=4.5V, I_D=3A$		36	65	$m\Omega$
		$V_{GS}=2.5V, I_D=2.8A$		53	90	$m\Omega$
Forward Transconductance	g_{FS}	$V_{DS}=5V, I_D=-3A$		8		S
Diode Forward Voltage	V_{SD}	$I_{SD}=-1.7A, V_{GS}=0V$		0.74	1.2	V
Maximum Body-Diode Continuous Current	I_S				2.5	A
Switching						
Total Gate Charge	Q_g	$V_{GS}=4.5V, V_{DS}=-10V, I_D=3A$		2.9	5	nC
Gate-Source Charge	Q_{gs}			0.4		
Gate-Drain Charge	Q_{gd}			0.6		
Turn-On Delay Time	$t_{d(on)}$	$V_{DS}=10V, I_D=3A, V_{GS}=4.5V, R_G=3\Omega$		2.5		ns
Turn-On Rise Time	t_r			3.2		
Turn-Off Delay Time	$t_{d(off)}$			21		
Turn- Off Rise Time	t_f			3		
Dynamic						
Input Capacitance	C_{iss}	$V_{DS}=10V, V_{GS}=0V, F=1.0MHz$		260		pF
Output Capacitance	C_{oss}			48		
Reverse Transfer capacitance	C_{rss}			27		

Note:

A: The value of $R_{\theta JA}$ is measured with the device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with $T_A=25^\circ\text{C}$. 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 $t_s \leq 10s$ junction to ambient thermal resistance rating.



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Typical Characteristics (N-Channel)

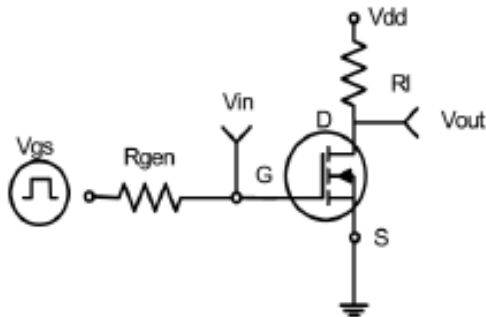


Figure 1 Switching Test Circuit

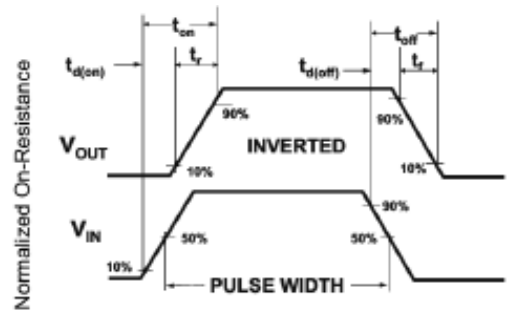
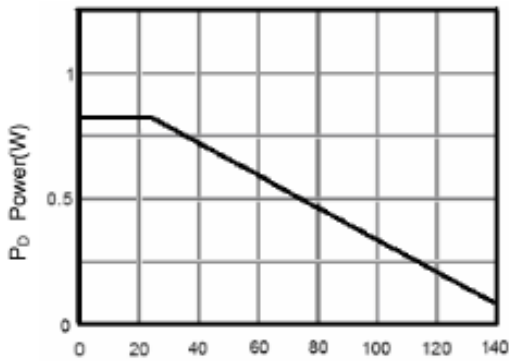
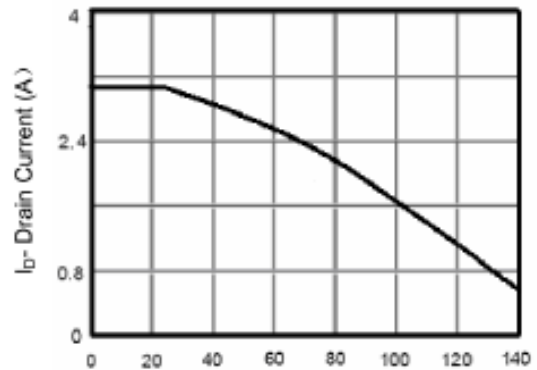


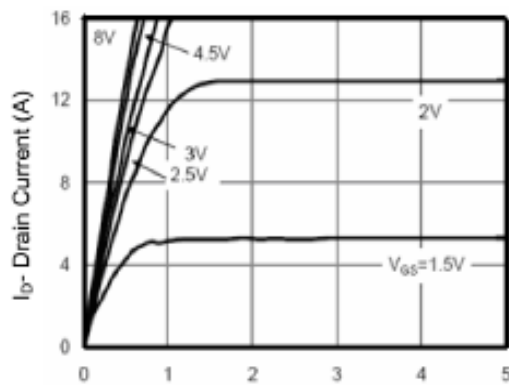
Figure 2 Switching Waveforms



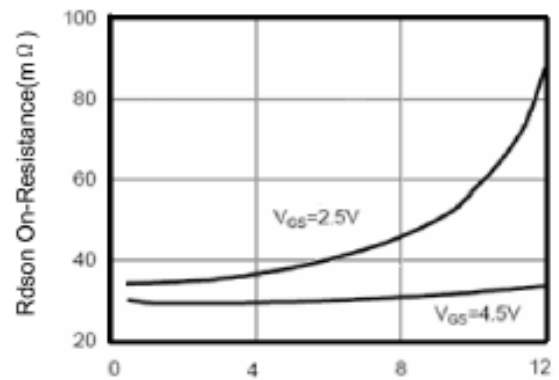
T_J-Junction Temperature (°C)
Figure 3 Power Dissipation



T_J -Junction Temperature (°C)
Figure 4 Drain Current



V_{ds} Gate-Source Voltage(V)
Figure 5 Output Characteristics

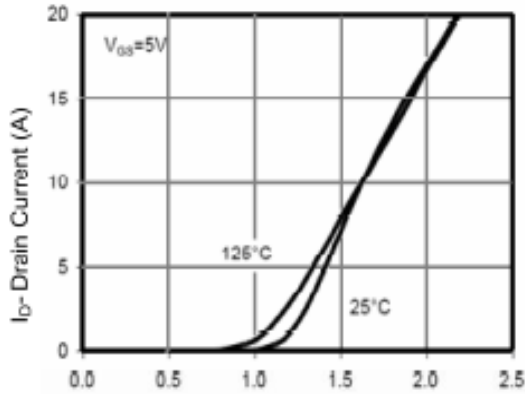


ID-Drain Current(A)
Figure 6 Drain - Source On - Resistance

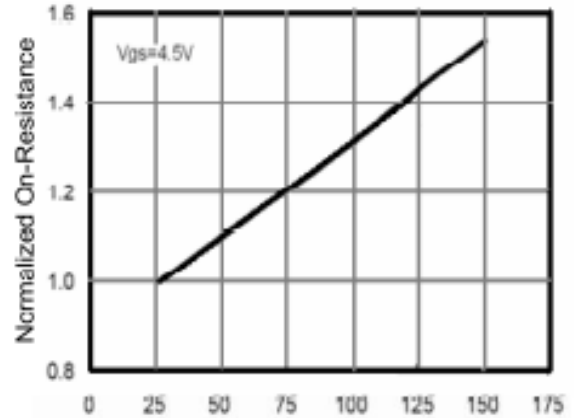


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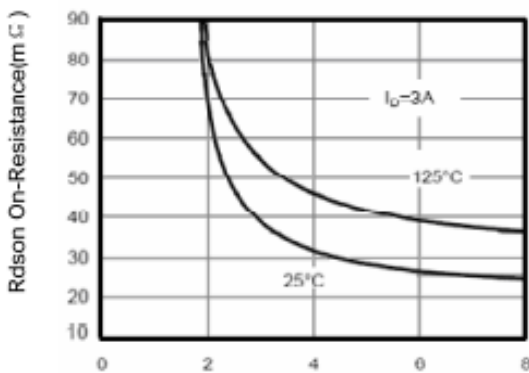
Typical Characteristics (N-Channel)



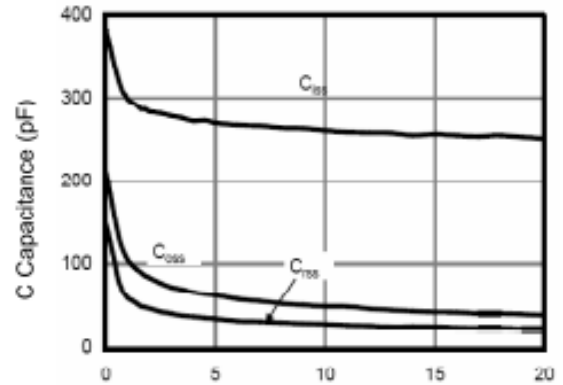
Vgs Gate-Source Voltage(V)
Figure 7 Transfer Characteristics



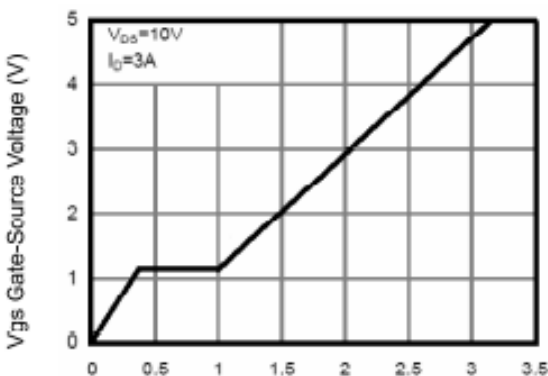
Tj -Junction Temperature (°C)
Figure 8 Drain – Source On-Resistance



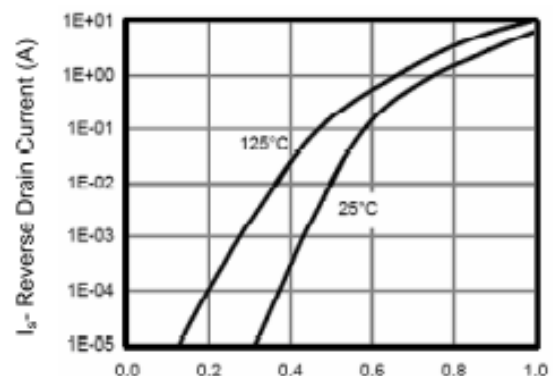
Vgs Gate-Source Voltage(V)
Figure 9 Rds(on) vs Vgs



Vds Drain – Source Voltage(V)
Figure 10 Capacitance vs Vds



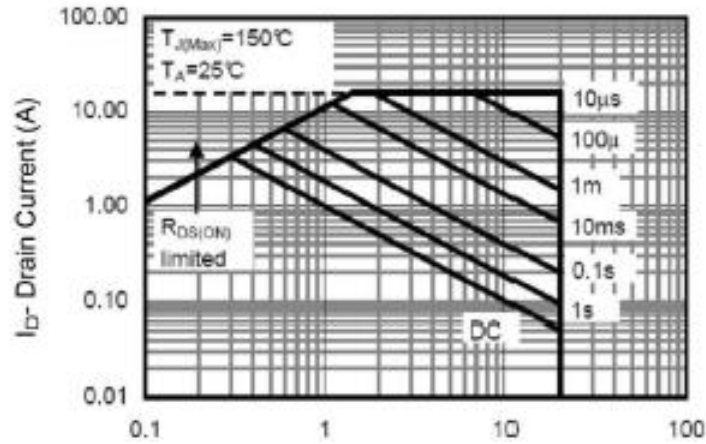
Qg Gate Charge(nC)
Figure 11 Gate Charge



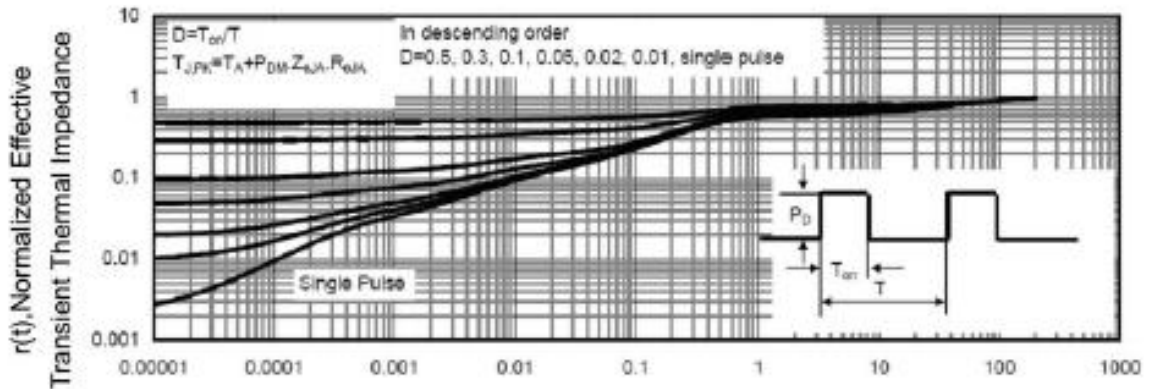
Vsd Source-Drain Voltage(V)
Figure 12 Source- Drain Diode Forward



Typical Characteristics (N-Channel)



Vds Drain-Source Voltage(V)
Figure 13 Safe Operation Area



Square Wave Pulse Duration(sec)
Figure 14 Normalized Maximum Transient Thermal Impedance



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N&P-Channel Enhancement Mode MOSFET

Electrical Characteristics (P-Channel) ($T_A=25^\circ\text{C}$ Unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-20			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-20V, V_{GS}=0V$			-1	μA
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-0.4	-0.7	-1	V
Gate Leakage Current	I_{GSS}	$V_{GS}=\pm 12V, V_{DS}=0V$			± 100	nA
Drain-Source On Resistance	$R_{DS(ON)}$	$V_{GS}=-4.5V, I_D=-2.5A$		80	110	m Ω
		$V_{GS}=-2.5V, I_D=-2A$		110	140	m Ω
Forward Transconductance	g_{FS}	$V_{DS}=-5V, I_D=-2.5A$		9.5		S
Diode Forward Voltage	V_{SD}	$I_{SD}=-3A, V_{GS}=0V$			-1.2	V
Maximum Body-Diode Continuous Current	I_S				-2.5	A
Switching						
Total Gate Charge	Q_g	$V_{GS}=-4.5V, V_{DS}=-10V, I_D=-2A$		3.2		nC
Gate-Source Charge	Q_{gs}			0.6		
Gate-Drain Charge	Q_{gd}			0.9		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=-10V, R_L=5\Omega, I_D=-2A, V_{GEN}=-4.5V, R_G=3\Omega$		11		ns
Turn-On Rise Time	t_r			5.5		
Turn-Off Delay Time	$t_{d(off)}$			22		
Turn- Off Rise Time	t_f			8		
Dynamic						
Input Capacitance	C_{iss}	$V_{GS}=-10V, V_{GS}=0V, F=1.0\text{MHz}$		325		pF
Output Capacitance	C_{oss}			63		
Reverse Transfer capacitance	C_{rss}			37		

Note:

- A: The value of $R_{\theta JA}$ is measured with the device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with $T_A=25^\circ\text{C}$. 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 $t \leq 10s$ junction to ambient thermal resistance rating.



ACE6344B N&P-Channel Enhancement Mode MOSFET

Typical Characteristics (P-Channel)

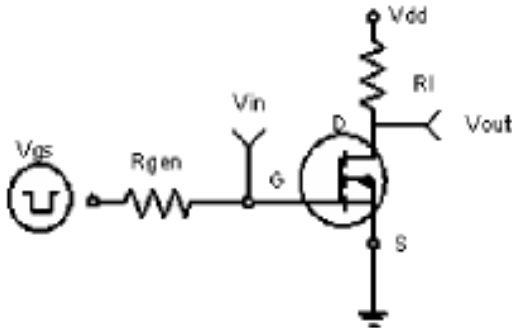


Figure 1 Switching Test Circuit

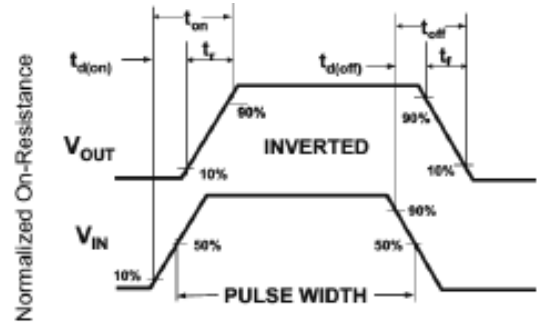
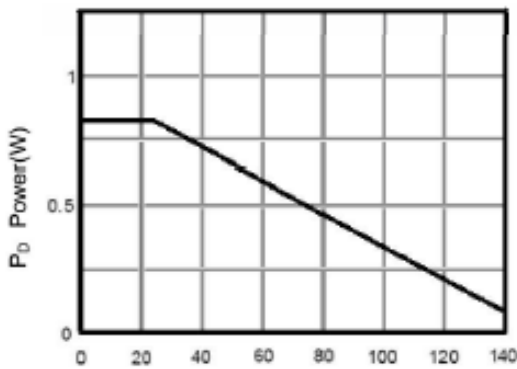
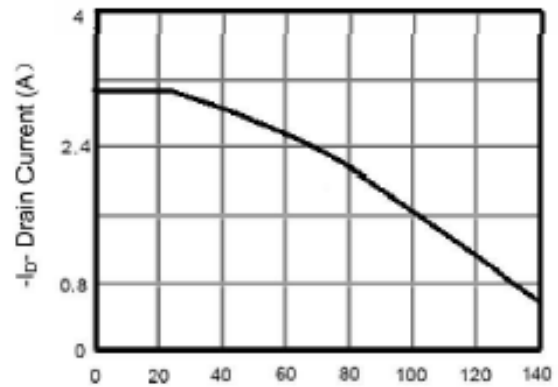


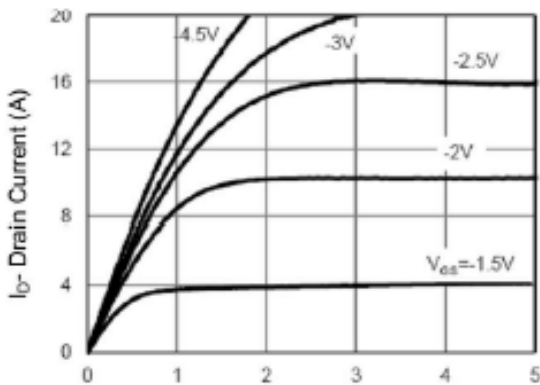
Figure 2 Switching Waveforms



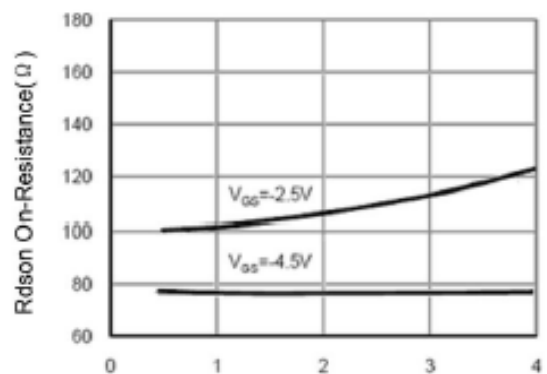
T_J -Junction Temperature ($^{\circ}C$)
Figure 3 Power Dissipation



T_J -Junction Temperature ($^{\circ}C$)
Figure 4 Drain Current



$-V_{DS}$ Gate-Source Voltage (V)
Figure 5 Output Characteristics

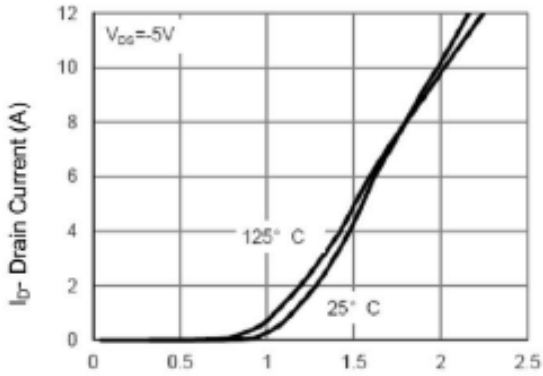


$-I_D$ Drain Current (A)
Figure 6 Drain-Source On-Resistance

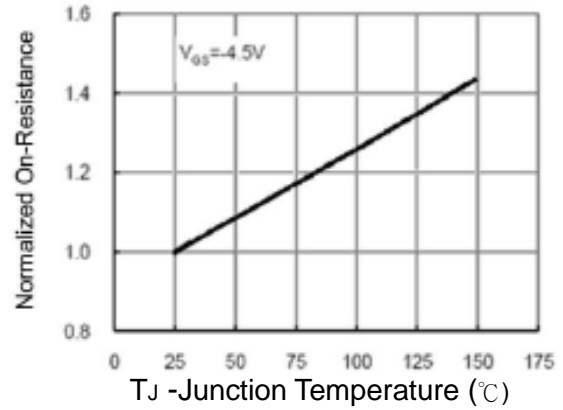


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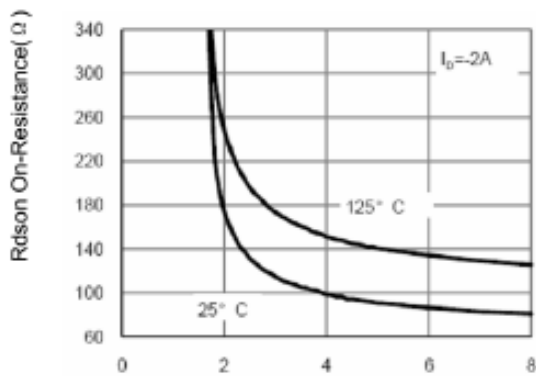
Typical Characteristics (P-Channel)



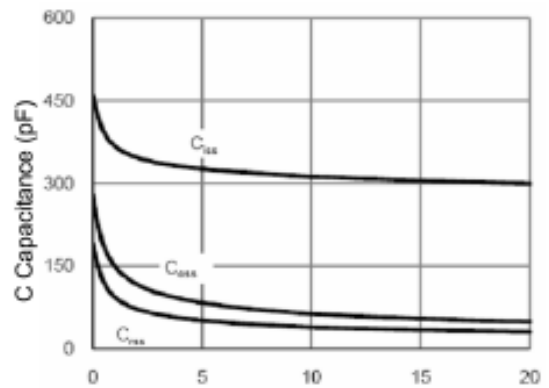
-Vgs Gate-Source Voltage(V)
Figure 7 Transfer Characteristics



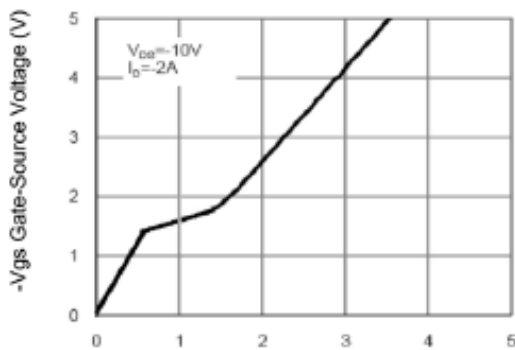
Tj - Junction Temperature (°C)
Figure 8 Drain – Source On-Resistance



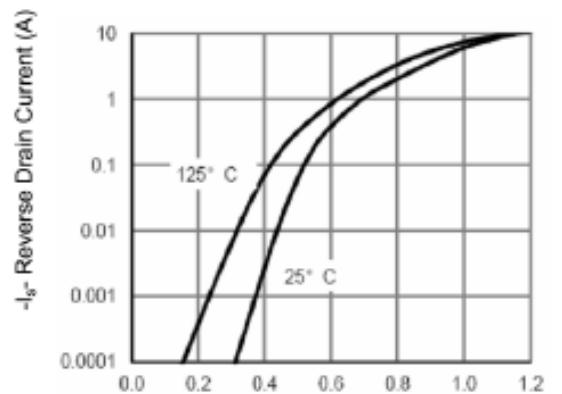
-Vgs Gate-Source Voltage(V)
Figure 9 Rdson vs Vgs



-Vsd Drain – Source Voltage(V)
Figure 10 Capacitance vs Vds



Qg Gate Charge(nC)
Figure 11 Gate Charge



-Vsd Source- Drain Voltage(V)
Figure 12 Source- Drain Diode Forward



Typical Characteristics (P-Channel)

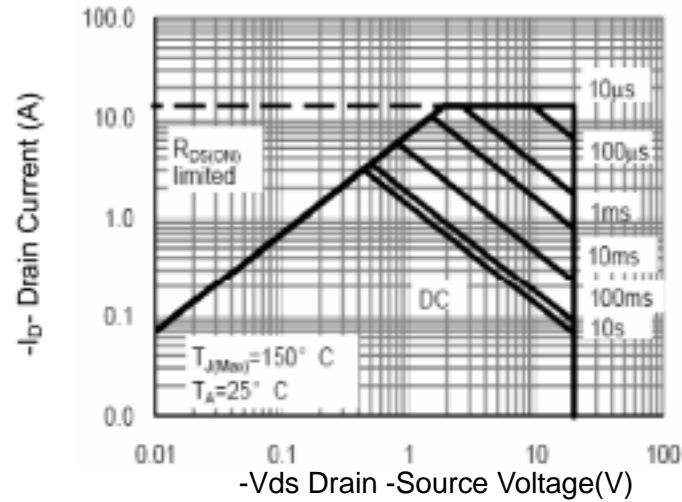


Figure 13 Safe Operation Area

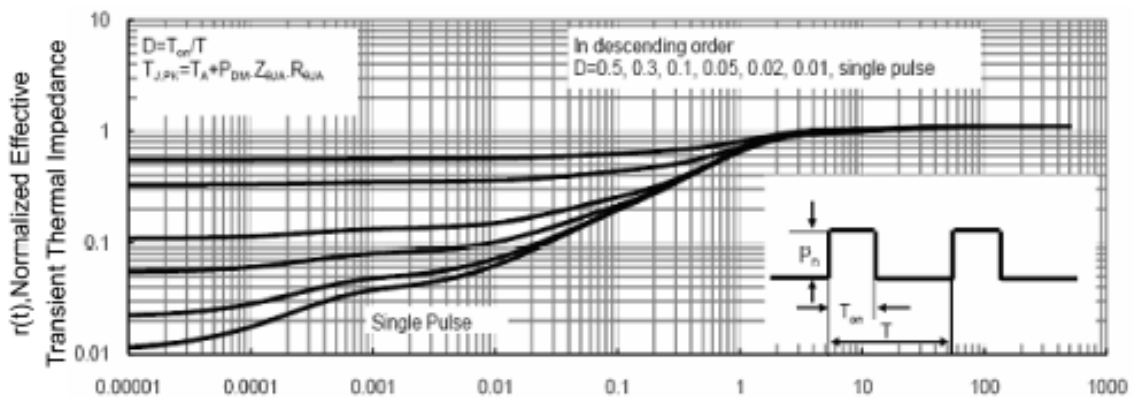
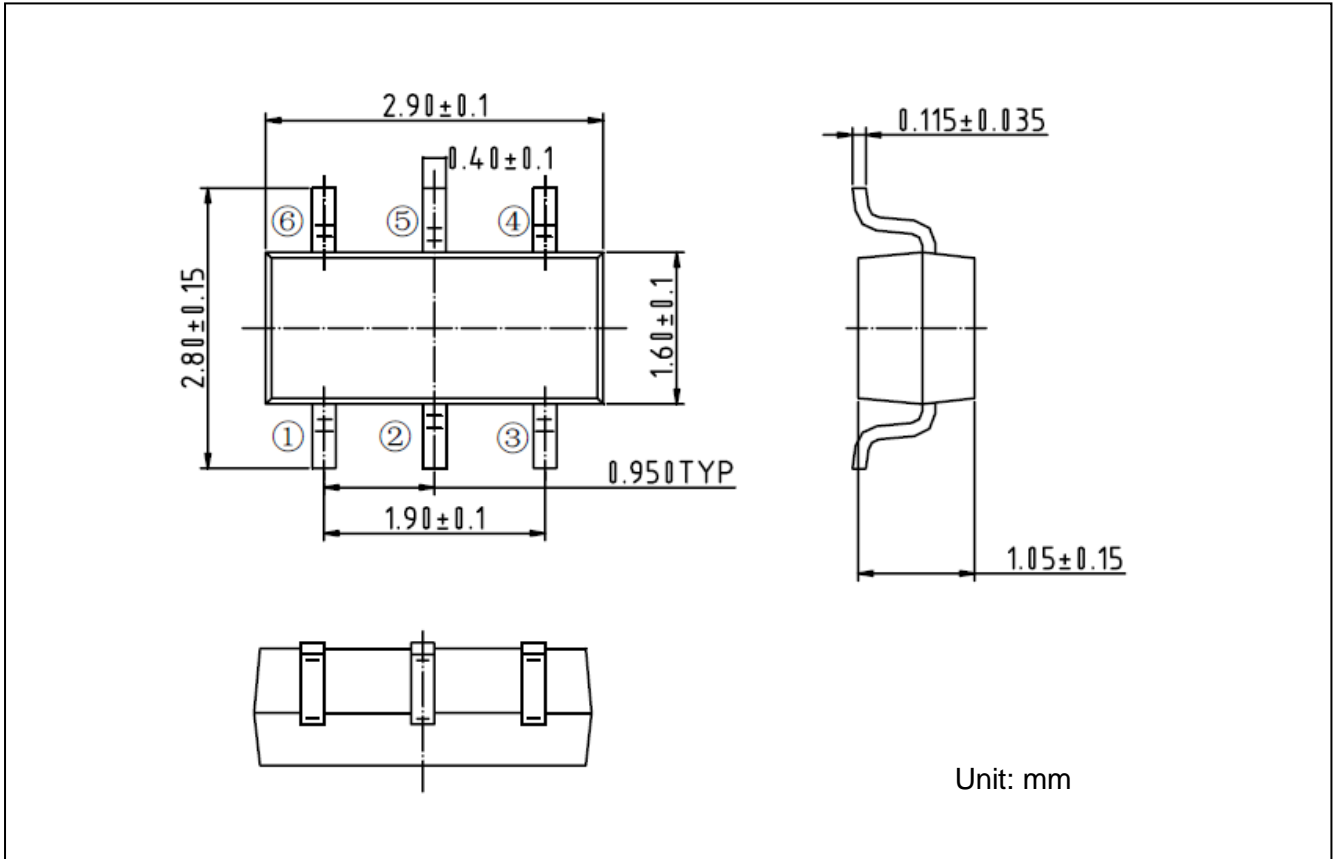


Figure 14 Normalized Maximum Transient Thermal Impedance



ACE6344B N&P-Channel Enhancement Mode MOSFET

Packing Information SOT-23-6L





ACE6344B

N&P-Channel Enhancement Mode MOSFET

Notes

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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.

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