◆ DESCRIPTION

The MT9945 uses advanced technology to provide excellent $R_{DS(ON)}$, low switching loss and reasonable price.

This high density process is especially tailored to minimize on-state resistance. These devices are particularly suited for low voltage application such as cellular phone and notebook computer power management and other battery powered circuits, and low in-line power loss are needed in a very small outline surface mount package.

◆ FEATURES

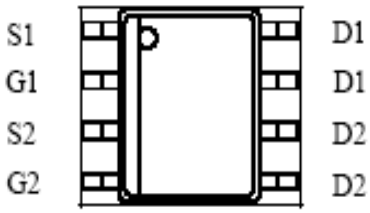
- V_{DS} = 60V
- $R_{DS(ON)}$, V_{GS} @ 10V, I_{DS} @ 3.6A = 89mΩ
- $R_{DS(ON)}$, V_{GS} @ 4.5V, I_{DS} @ 3.4A = 104mΩ
- Advanced trench process technology
- High Density Cell Design For Ultra Low On-Resistance
- High power and Current handing capacity.
- Fully Characterized Avalanche Voltage andCurrent

◆ APPLICATIONS

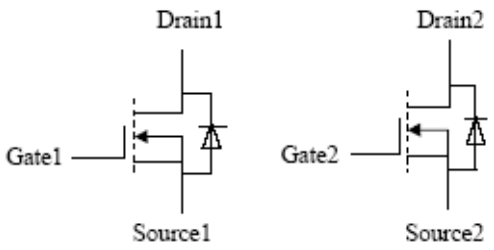
- POWER Management in Notebook
- Portable Equipment
- Battery Powered System

◆ PIN CONFIGURATION

SOP-8



MT9945



◆ ABSOLUTE MAXIMUM RATINGS

(T_A=25°C Unless Otherwise Noted)

Parameter		Symbol	Maximum	Unit
Drain-Source Voltage		V_{DS}	60	V
Gate-Source Voltage		V_{GS}	± 20	V
Continuous Drain Current(1)		I_D	3.6	A
Pulsed Drain Current(2)		I_{DM}	25	A
Maximum Power Dissipation(1)	T_A = 25℃	P_D	2.1	W
	T_A = 75℃		1.3	
Operating junction temperature range		T_J	150	°C
Storage temperature range		T_{STG}	- 55 to 150	°C

◆ THERMAL RESISTANCE RATINGS

Thermal Resistance	Symbol	Maximum	Unit
Junction-to-Ambient(1)	$R_{\theta JA}$	62.5	°C/W

◆ ELECTRICAL CHARACTERISTICS

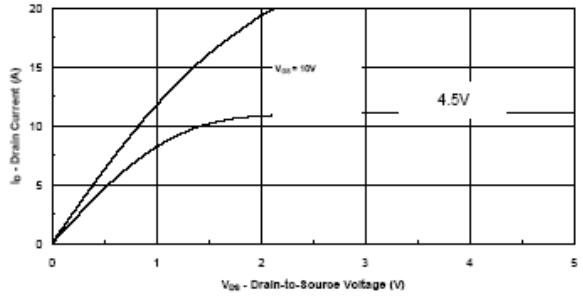
(T_A=25°C Unless Otherwise Noted)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS} = 0V, I_D = 250 μA	60	-	-	V
Drain-Source On State Resistance(1)	$R_{DS(ON)}$	V_{GS} = 4.5V, I_D = 3.4 A	-	-	104	mΩ
		V_{GS} = 10V, I_D = 3.6 A	-	-	89	
Gate Threshold Voltage	$V_{GS(th)}$	V_{GS} = V_{DS}, I_D = 250 μA	1.0	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 60V, V_{GS} = 0 V	-	-	1	μA
Gate-Body Leakage	I_{GSS}	V_{DS} = 0V, V_{GS} = ± 20 V,	-	-	±100	nA
Diode Forward Voltage(1)	g_{fs}	I_D =3.6 A, V_{DS} = 15V	-	11	-	S
Dynamic Characteristics (2)						
Total Gate Charge	Q_g	V_{DS} = 30V, V_{GS} = 4.5V, I_D = 3.6A	-	3.6	-	nC
Gate Source Charge	Q_{gs}		-	1.8	-	
Gate Drain Charge	Q_{gd}		-	1.3	-	
Switching						
Turn-On Delay Time	$T_{D(on)}$	V_{DD} = 30V, V_{GEN} = 10V, R_L = 30Ω, I_D = 1A,	-	9	-	nS
Turn-On Rise Time	T_r		-	10	-	
Turn-Off Delay Time	$T_{D(off)}$		-	21	-	
Turn-Off Fall Time	T_f		-	8	-	

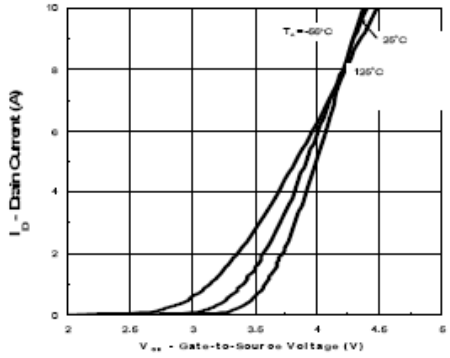
Note :

1. Pulse Test：Pulse width ≤ 300us , Duty Cycle ≤ 2%
2. Guaranteed by design, not subject to production testing.

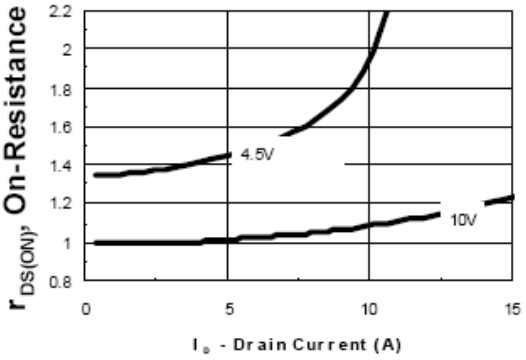
◆ TYPICAL CHARACTERICTICS



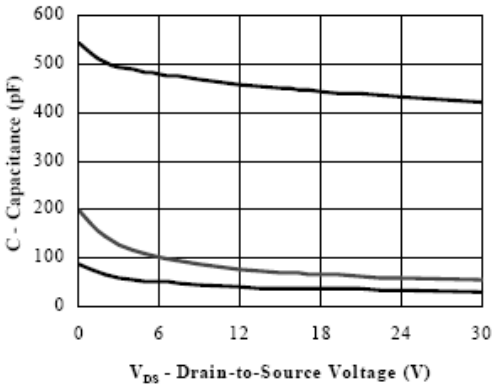
Output Characteristics



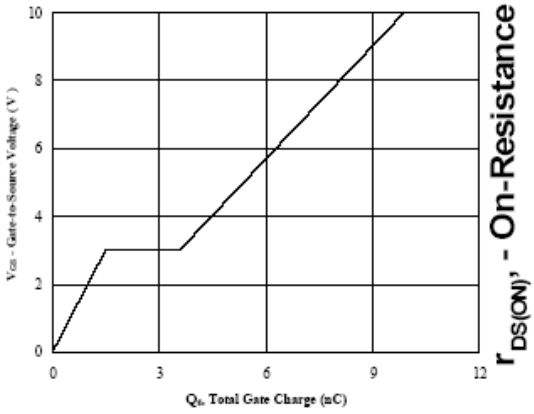
Transfer Characteristics



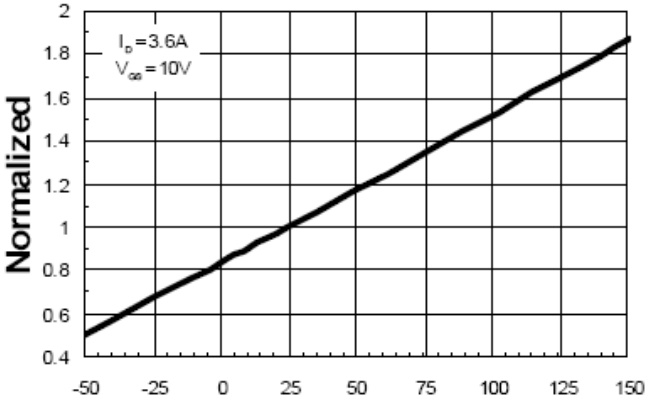
On-Resistance vs. Drain Current



Capacitance

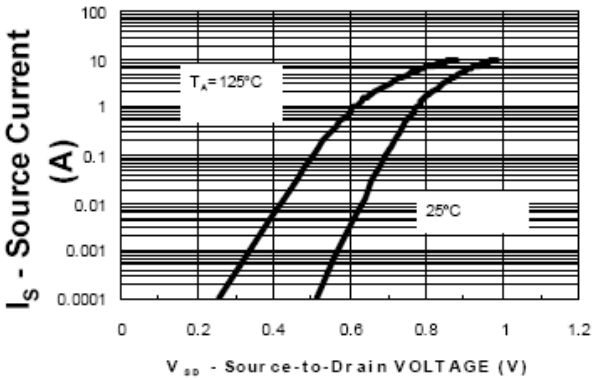


Gate Charge

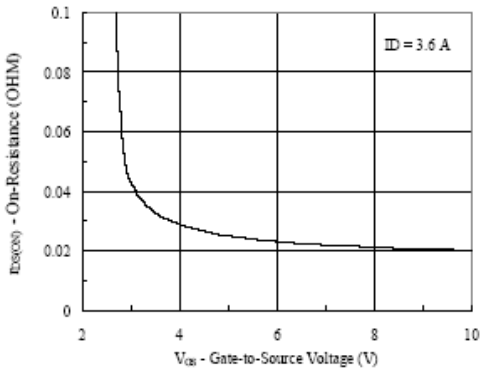


On-Resistance vs. Junction Temperature

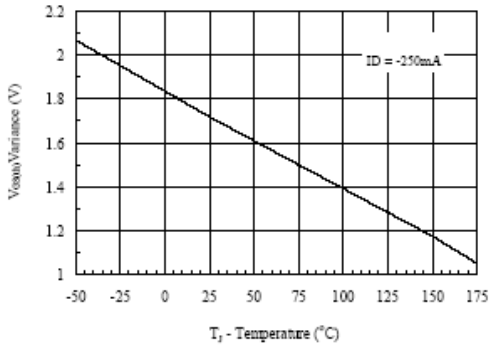
◆ TYPICAL CHARACTERICTICS



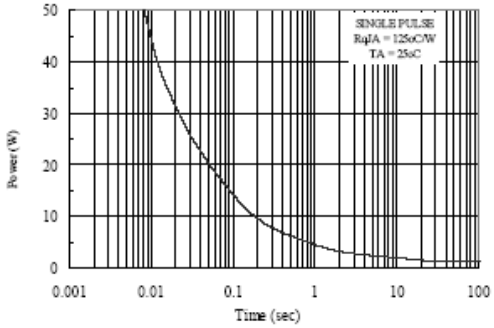
Source-Drain Diode Forward Voltage



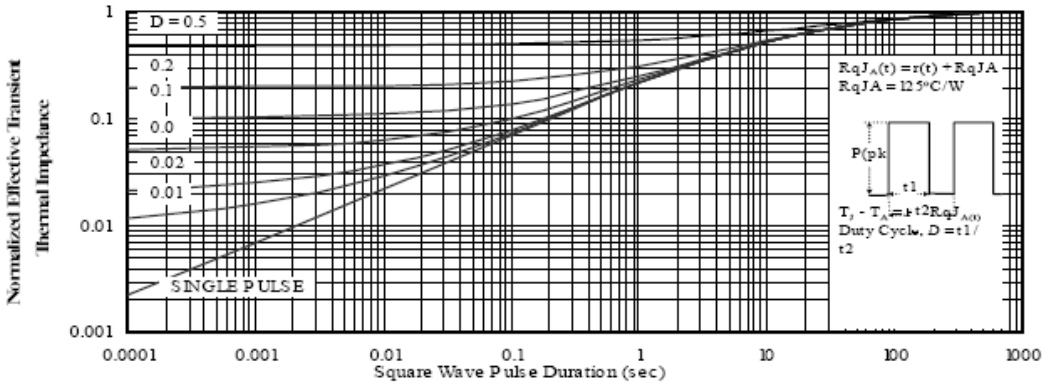
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage



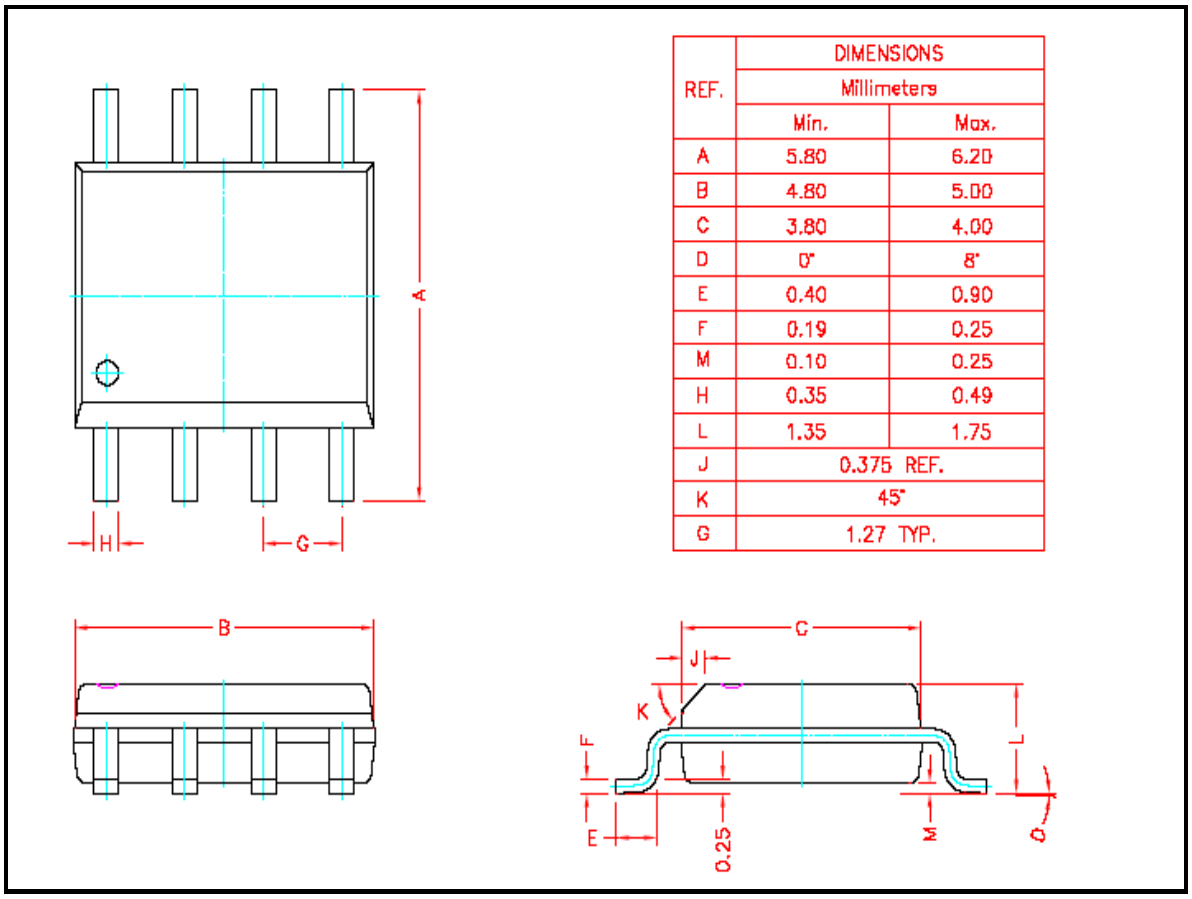
Single Pulse Power



Normalized Thermal Transient Impedance, Junction-to-Ambient

◆ PHYSICAL DIMENSIONS

8-Pin Plastic S.O.I.C.



REF.	DIMENSIONS	
	Millimeters	
	Min.	Max.
A	5.80	6.20
B	4.80	5.00
C	3.80	4.00
D	0°	8°
E	0.40	0.90
F	0.19	0.25
M	0.10	0.25
H	0.35	0.49
L	1.35	1.75
J	0.375 REF.	
K	45°	
G	1.27 TYP.	