P-Channel 60-V(D-S) Enhancement

GENERAL DESCRIPTION

The MESS84W is the P-Channel logic enhancement mode power field effect transistors are produced using high cell density, DMOS trench technology. 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 where high-side switching and low in-line power loss are needed in a very small outline surface mount package.

FEATURES

- $R_{DS(ON)} \leqq 5\Omega @ V_{GS}$=-10V
- $R_{DS(ON)} \leqq 6\Omega @ V_{GS}$=-5V
- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability

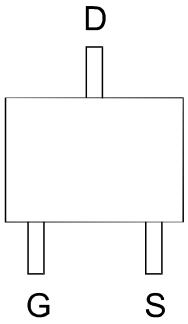
APPLICATIONS

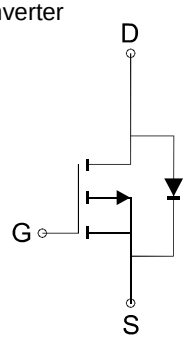
- Power Management in Note book
- Portable Equipment
- Battery Powered System
- DC/DC Converter
- Load Switch
- DSC
- LCD Display inverter

PIN CONFIGURATION

(SOT-323)

Top View





P-Channel MOSFET

Ordering Information:MESS84W(Pb-free)

MESS84W-G (Green product-Halogen free)

Absolute Maximum Ratings (T_A=25℃ Unless Otherwise Noted)

Parameter		Symbol	Maximum Ratings	Unit
Drain-Source Voltage		V_{DS}	-60	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain	T_A=25℃	I_D	-0.2	A
	T_A=70℃	I_D	-0.16	
Pulsed Drain Current		I_{DM}	-0.8	A
Maximum Power Dissipation	T_A=25℃	P_D	0.34	W
	T_A=70℃	P_D	0.22	
Junction and Storage Temperature Range		TJ, Tstg	-55 to 150	℃
Thermal Resistance-Junction to Ambient*		$R_{\theta JA}$	367	℃/W

*The device mounted on 1in^2 FR4 board with 2 oz copper

P-Channel 60-V(D-S) Enhancement

Electrical Characteristics (T_A=25℃ Unless Otherwise Specified)

Symbol	Parameter	Limit	Min	Typ	Max	Unit
STATIC						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=-250μA	-60			V
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=-250μA	-0.8		-2.0	V
I_{GSS}	Gate Leakage Current	V_{DS}=0V, V_{GS}=±20V			±100	nA
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=-60V, V_{GS}=0V			-1	μA
$R_{DS(ON)}$	Drain-Source On-Resistance	V_{GS}=-10V, I_D= -100mA		2	5	Ω
		V_{GS}=-5V, I_D= -100mA		2	6	
V_{SD}	Diode Forward Voltage	I_S=-0.1A, V_{GS}=0V			-2.9	V
DYNAMIC						
Qg	Total Gate Charge	V_{DS}=-40, V_{GS}=-10V, I_D=-0.5A		6.6		nC
Qg	Total Gate Charge	V_{DS}=-40, V_{GS}=-4.5V, I_D=-0.5A		2.3		
Qgs	Gate-Source Charge			2.4		
Qgd	Gate-Drain Charge			0.7		
Ciss	Input Capacitance	V_{DS}=-30V, V_{GS}=0V,f=1MHz		42		pF
Coss	Output Capacitance			4		
Crss	Reverse Transfer Capacitance			2		
$t_{d(on)}$	Turn-On Delay Time	V_{DS}=-15V, R_L =50Ω V_{GS}=-10V, R_G=25Ω I_D=-0.3A		13.7		ns
t_r	Turn-On Rise Time			6.2		
$t_{d(off)}$	Turn-Off Delay Time			15.9		
t_f	Turn-Off Fall Time			2.8		

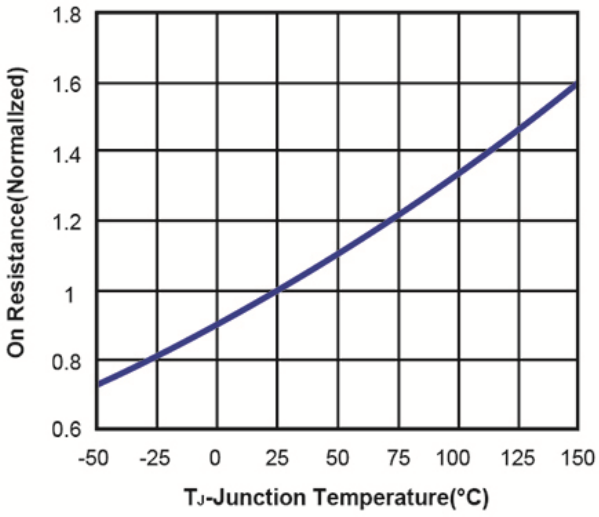
Notes: a. Pulse test; pulse width ≦ 300us, duty cycle≦ 2%

b. Matsuki Electric reserves the right to improve product design, functions and reliability without notice.

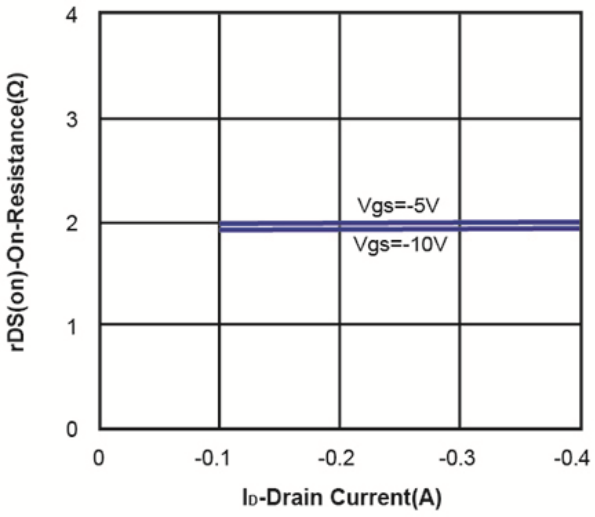
P-Channel 60-V(D-S) Enhancement

Typical Characteristics (T_J =25℃ Noted)

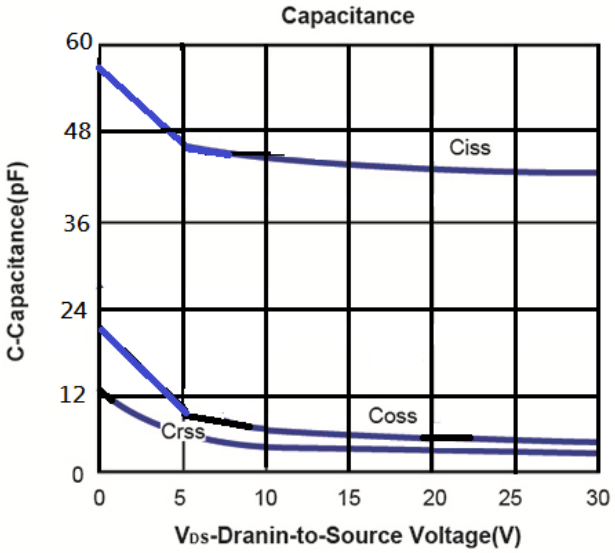
On Resistance vs. Junction Temperature



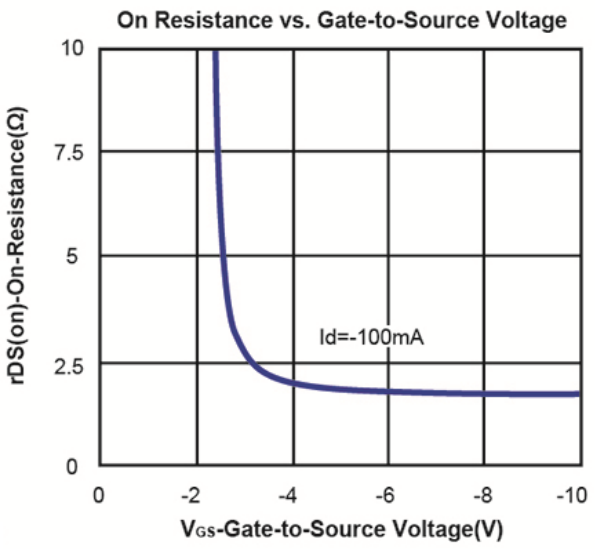
On Resistance vs. Drain Current



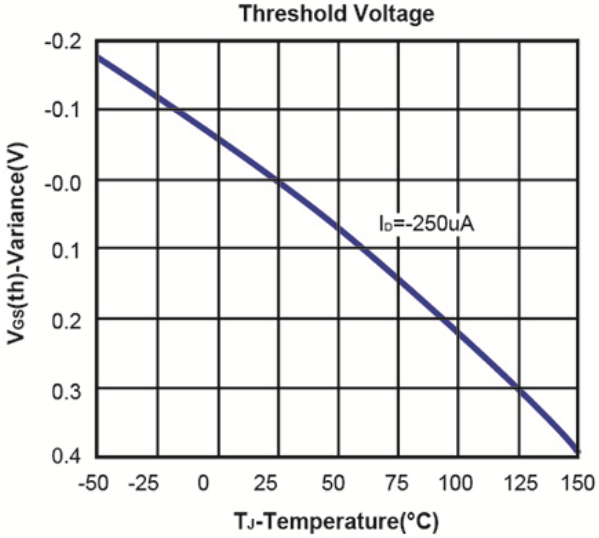
Capacitance



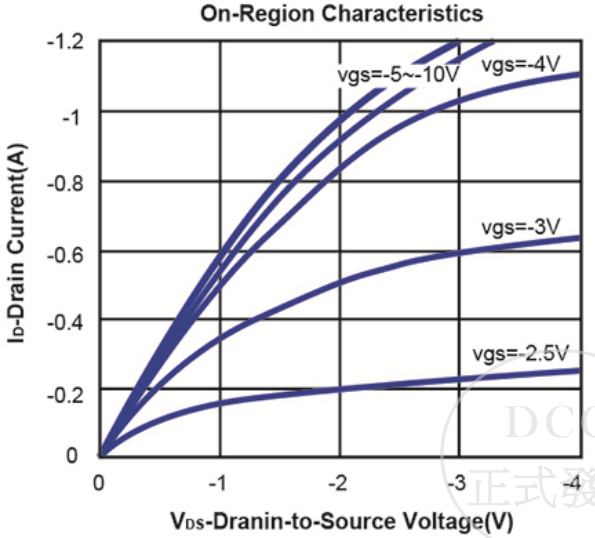
On Resistance vs. Gate-to-Source Voltage



Threshold Voltage



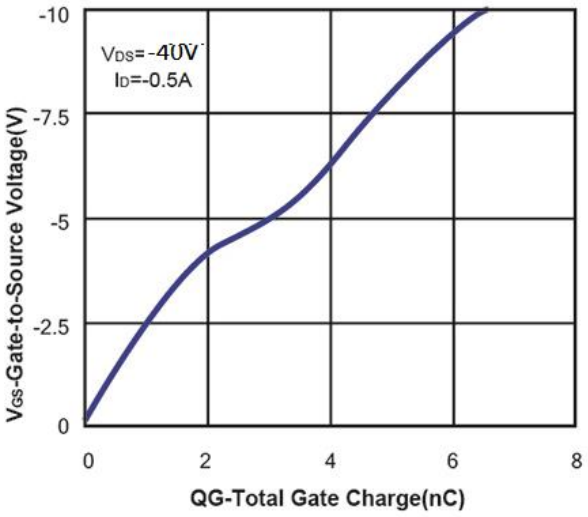
On-Region Characteristics



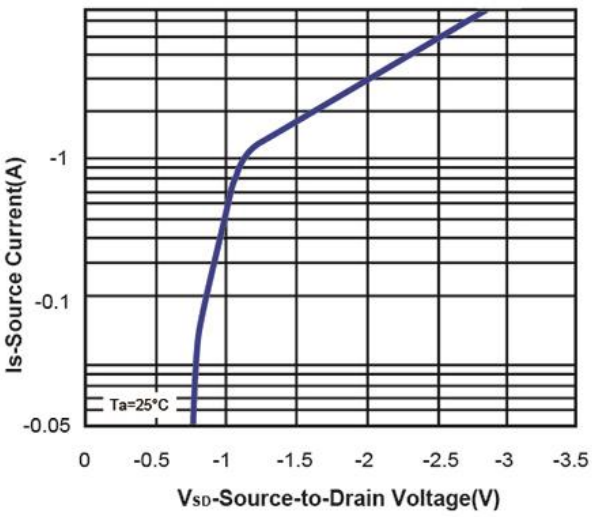
P-Channel 60-V(D-S) Enhancement

Typical Characteristics (T_J =25℃ Noted)

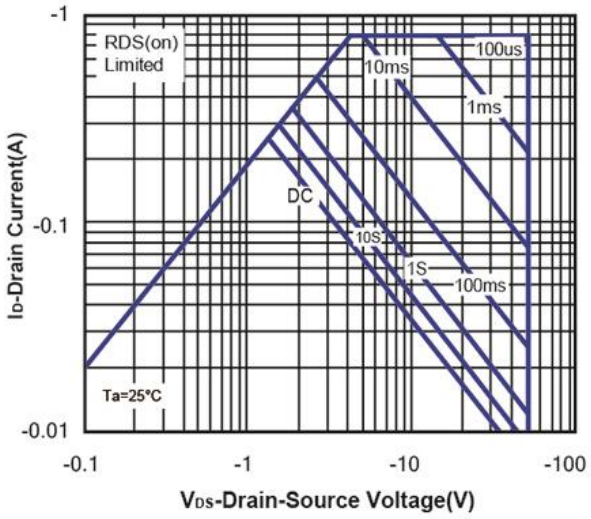
Gate Charge



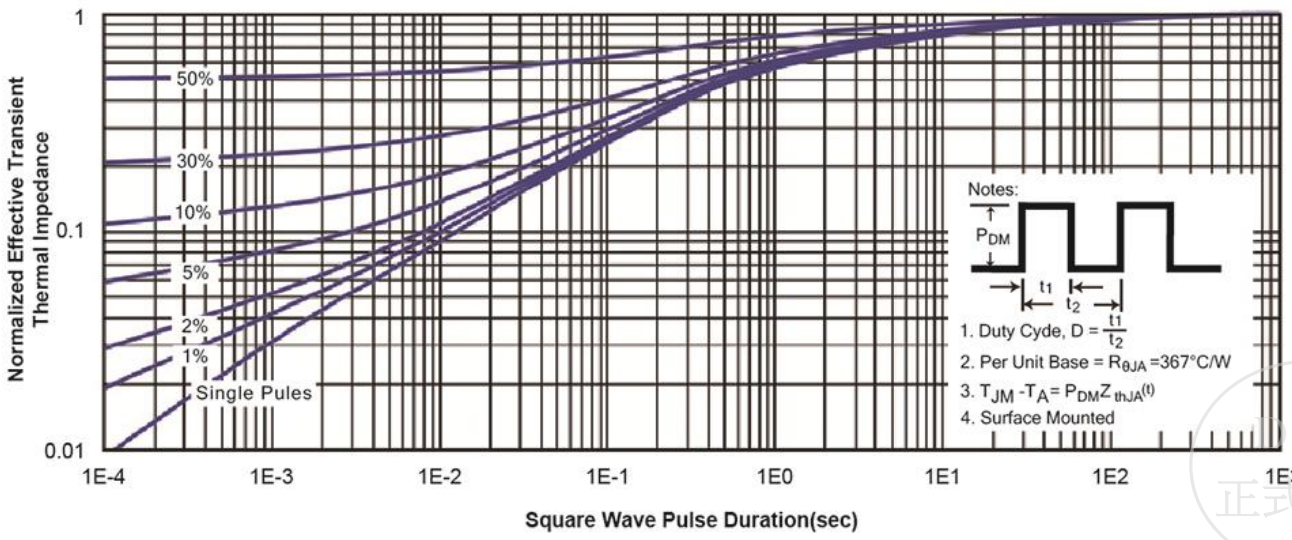
Body-diode characteristics



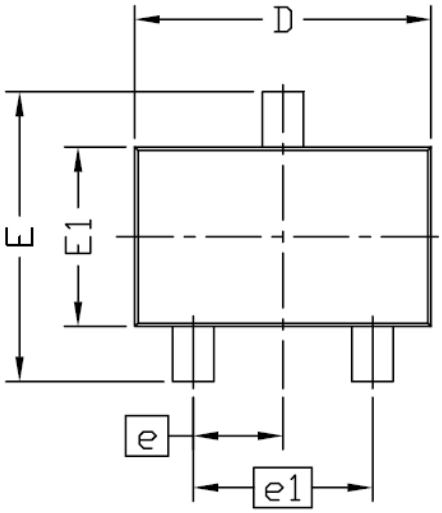
Maximum Forward Biased Safe Operating Area

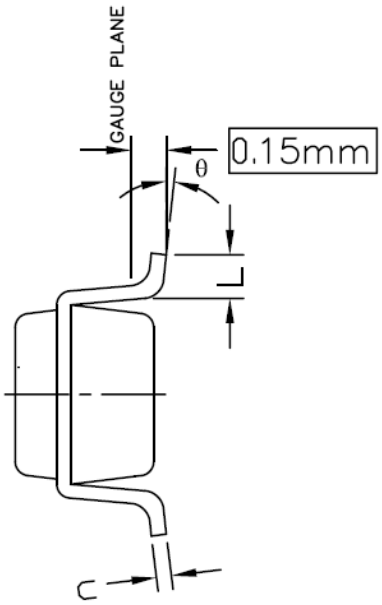


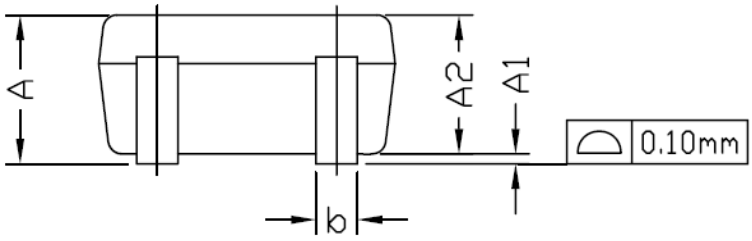
Normalized Thermal Transient Impedance,Junction-to-Ambient



SOT-323 Package Outline







DIM	MILLIMETERS (mm)	
	MIN	MAX
A	-	1.10
A1	0.00	0.10
A2	0.7	1.00
b	0.15	0.30
c	0.08	0.22
D	1.85	2.15
E	1.80	2.40
e	0.65 BSC	
e1	1.30 BSC	
E1	1.1	1.4
L	0.26	0.46
θ	0°	8°

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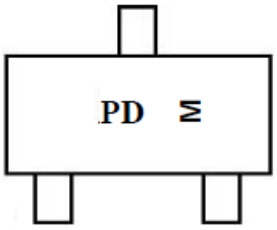
Device name:MESS84W/ MESS84W-G

Package:SOT-323

Marking Code:



PD: Device Marking Code

M: Date code

MONTH CODE

ODD YEARS(2007,2009)

Jan	1
Feb	2
Mar	3
Apr	4
May	5
Jun	6
Jul	7
Aug	8
Sep	9
Oct	T
Nov	V
Dec	C

EVEN YEARS(2006,2008)

Jan	E
Feb	F
Mar	H
Apr	J
May	K
Jun	L
Jul	N
Aug	P
Sep	U
Oct	X
Nov	Y
Dec	Z