

P-Channel 20V (D-S) MOSFET

GENERAL DESCRIPTION

The ME2333 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

- $R_{DS(ON)} \leq 35m\Omega @ V_{GS} = -4.5V$
- $R_{DS(ON)} \leq 43m\Omega @ V_{GS} = -2.5V$
- $R_{DS(ON)} \leq 56m\Omega @ V_{GS} = -1.8V$
- Super high density cell design for extremely low $R_{DS(ON)}$
- Exceptional on-resistance and maximum DC current capability

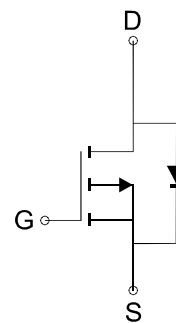
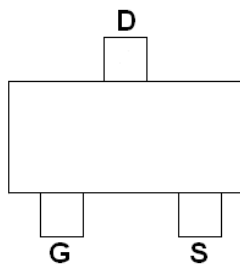
APPLICATIONS

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

PIN CONFIGURATION

(SOT-23)

Top View



Ordering Information: ME2333 (Pb-free)

ME2333 -G (Green product-Halogen)

P-Channel MOSFET

Absolute Maximum Ratings (TA=25°C Unless Otherwise Noted)

Parameter	Symbol	Maximum Ratings	Unit
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	± 12	V
Continuous Drain Current	I_D	$T_A = 25^\circ C$	-4.9
		$T_A = 70^\circ C$	-3.9
Pulsed Drain Current	I_{DM}	-19	A
Maximum Power Dissipation	P_D	$T_A = 25^\circ C$	1.3
		$T_A = 70^\circ C$	0.8
Junction and Storage Temperature Range	T_J, T_{stg}	-55 to 150	$^\circ C$
Thermal Resistance-Junction to Ambient*	$R_{\theta JA}$	90	$^\circ C/W$

*The device mounted on 1in² FR4 board with 2 oz copper



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Electrical Characteristics (TA=25°C Unless Otherwise Specified)

Symbol	Parameter	Limit	Min	Typ	Max	Unit
STATIC						
V(BR)DSS	Drain-Source Breakdown Voltage	VGS=0V, ID=-250 μA	-20			V
VGS(th)	Gate Threshold Voltage	VDS=VGS, ID=-250 μA	-0.3		-0.9	V
IGSS	Gate Leakage Current	VDS=0V, VGS=±12V			±100	nA
IDSS	Zero Gate Voltage Drain Current	VDS=-20V, VGS=0V			-1	μA
RDS(ON)	Drain-Source On-Resistance	VGS=-4.5V, ID= -8A		28	35	mΩ
		VGS=-2.5V, ID= -5A		34	43	
		VGS=-1.8V, ID= -2A		41	56	
VSD	Diode Forward Voltage	IS=-1A, VGS=0V		-0.62	-1	V
DYNAMIC						
Qg	Total Gate Charge	VDS=-10V, VGS=-4.5V, ID=-8A		17.5		nC
Qgs	Gate-Source Charge			4.9		
Qgd	Gate-Drain Charge			3		
Ciss	Input Capacitance	VDS=-10V, VGS=0V, f=1MHz		882		pF
Coss	Output Capacitance			141		
Crss	Reverse Transfer Capacitance			126		
td(on)	Turn-On Delay Time	VDS=-10V, RL=10Ω RGEN=3Ω, VGS=-4.5V		95.9		ns
tr	Turn-On Rise Time			29.8		
td(off)	Turn-Off Delay Time			122		
tf	Turn-Off Fall Time			32.5		

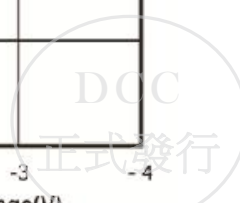
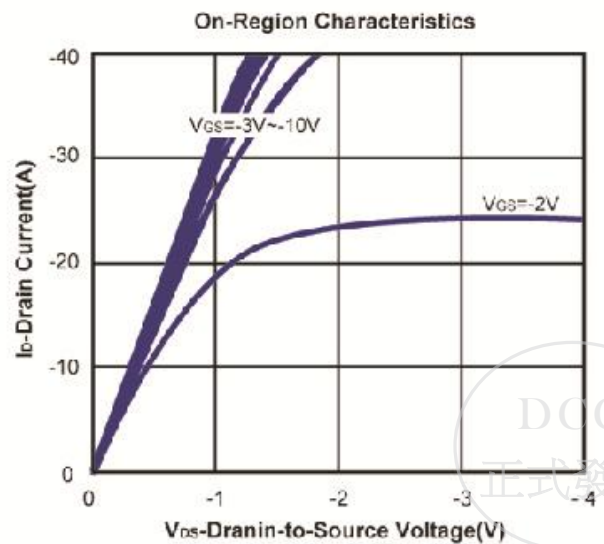
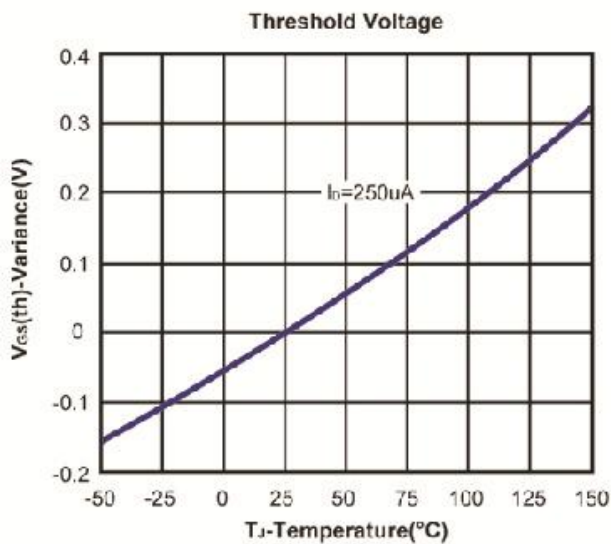
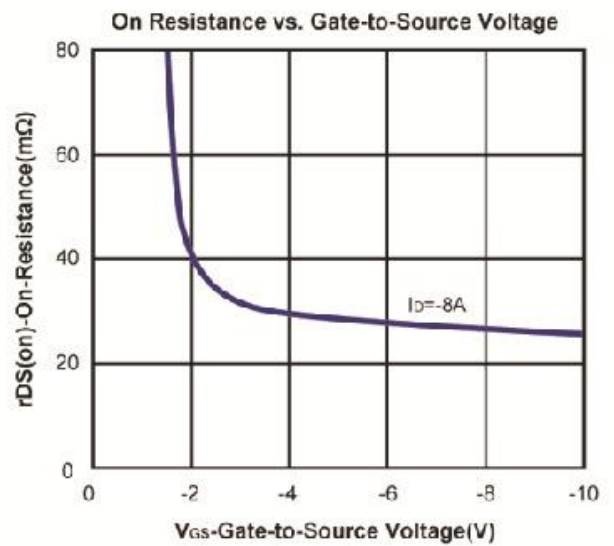
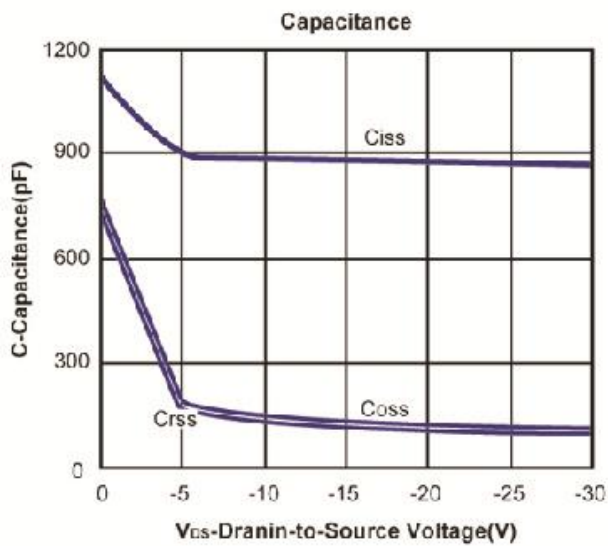
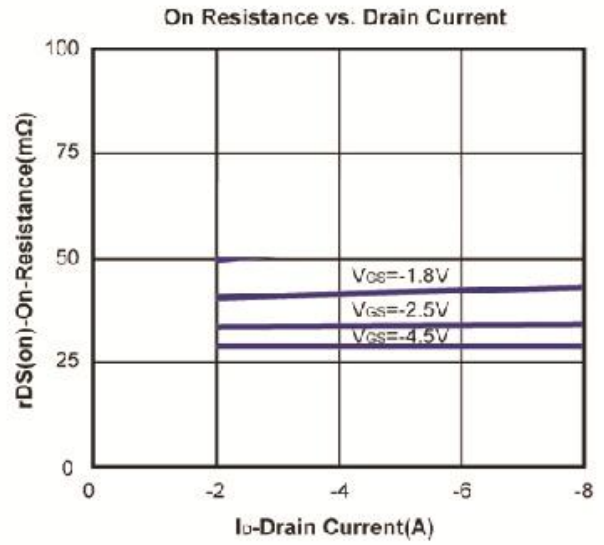
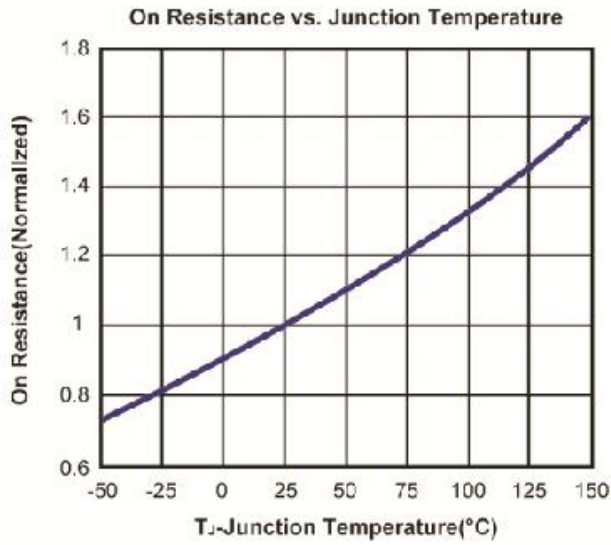
Notes: a. Pulse test; pulse width ≤ 300us, duty cycle ≤ 2%

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



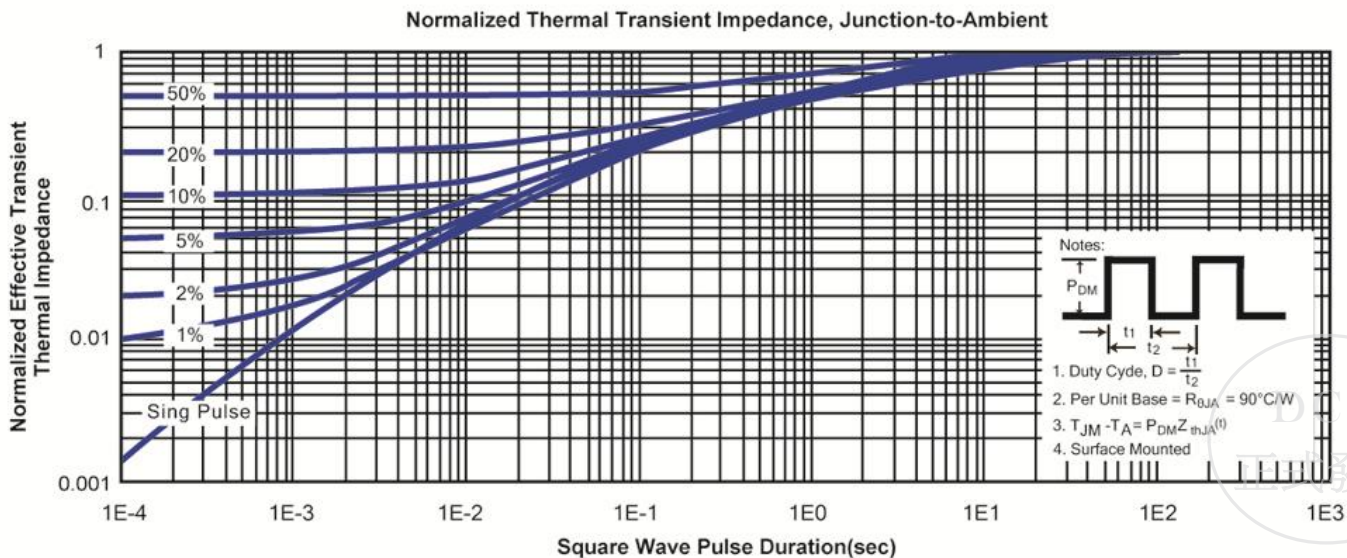
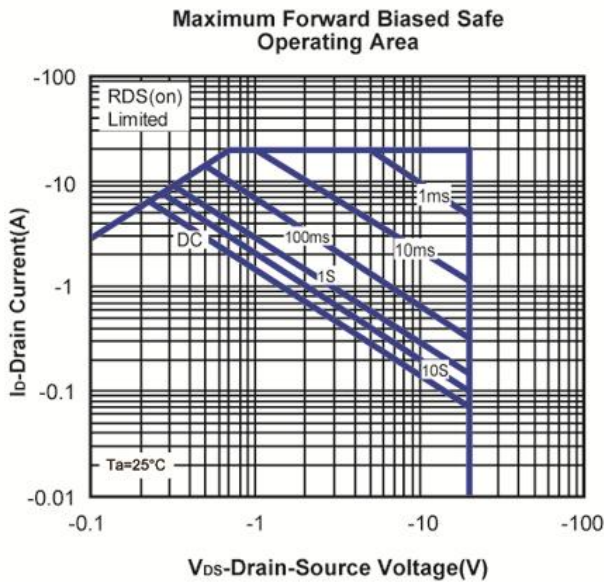
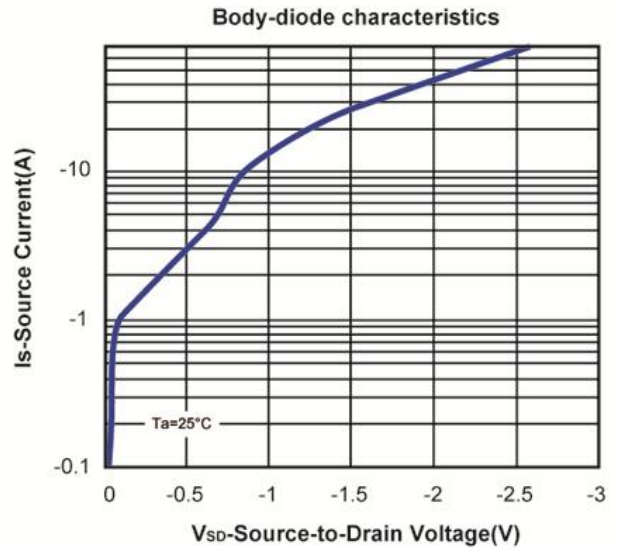
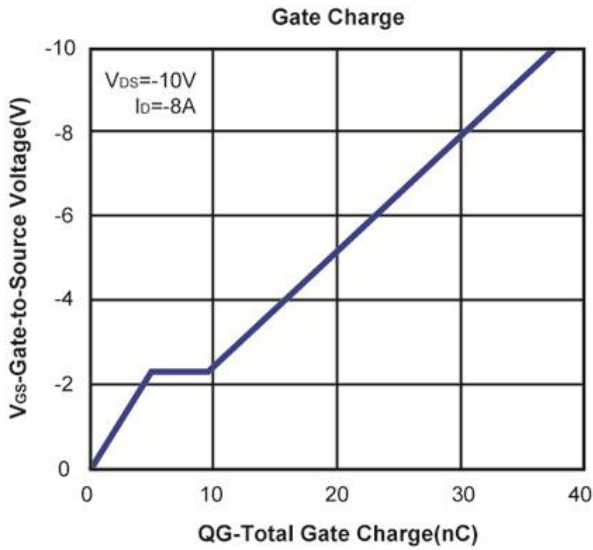
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Typical Characteristics (T_J = 25°C Noted)

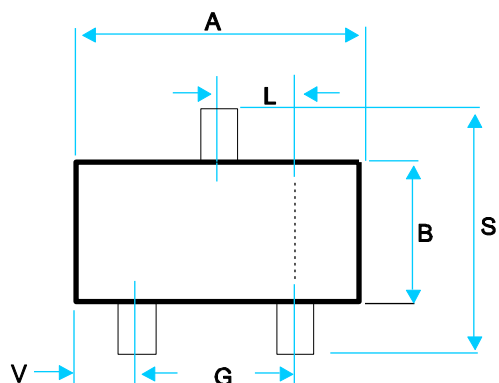


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Typical Characteristics (T_J =25°C Noted)



SOT-23 Package Outline



DIM	MILLIMETERS (mm)	
	MIN	MAX
A	2.800	3.00
B	1.200	1.70
C	0.900	1.30
D	0.350	0.50
G	1.780	2.04
H	0.010	0.15
J	0.085	0.20
K	0.300	0.65
L	0.890	1.02
S	2.100	3.00
V	0.450	0.60

