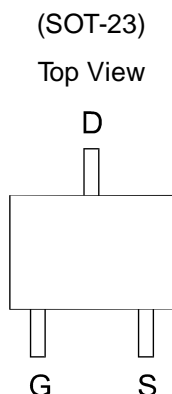## P-Channel 20-V (D-S) MOSFET，ESD Protection

GENERAL DESCRIPTION

The ME2323D(-G) 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.
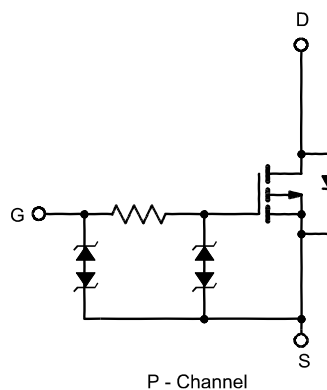
PIN CONFIGURATION

(SOT-23)

Top View

Ordering Information: ME2323D (Pb-free)

ME2323D-G (Green product-Halogen free)

FEATURES

● $R_{DS(ON)} \leq 50m\Omega @ V_{GS}=-4.5V$

● $R_{DS(ON)} \leq 65m\Omega @ V_{GS}=-2.5V$

● $R_{DS(ON)} \leq 75m\Omega @ V_{GS}=-1.8V$

● 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

P - Channel

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

Parameter		Symbol	Maximum Ratings	Unit
Drain-Source Voltage		V_{DS}	-20	V
Gate-Source Voltage		V_{GS}	±8	V
Continuous Drain	T_A=25℃	I_D	-4.2	A
	T_A=70℃		-3.3	
Pulsed Drain Current		I_{DM}	-17	A
Maximum Power Dissipation	T_A=25℃	P_D	1.4	W
	T_A=70℃		0.9	
Operating Junction Temperature		T_J	-55 to 150	℃
Thermal Resistance-Junction to Ambient*		$R_{\theta JA}$	90	℃/W

P-Channel 20-V (D-S) MOSFET，ESD Protection

Electrical Characteristics (T_A=25℃ Unless Otherwise Specified)

Symbol	Parameter	Limit	Min	Typ	Max	Unit
STATIC						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=-250μA	-20			V
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=-250μA	-0.25	-0.5	-1	V
I_{GSS}	Gate Leakage Current	V_{DS}=0V, V_{GS}=±4.5V			±5	μA
		V_{DS}=0V, V_{GS}=±8V			±10	
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=-16V, V_{GS}=0V			-1	μA
$R_{DS(ON)}$	Drain-Source On-Resistance[a]	V_{GS}=-4.5V, I_D= -4.0A		45	50	mΩ
		V_{GS}=-2.5V, I_D= -3.0A		52	65	
		V_{GS}=-1.8V, I_D= -2.0A		60	75	
V_{SD}	Diode Forward Voltage	I_S=-1.0A, V_{GS}=0V		-0.78	-1	V
DYNAMIC						
Qg	Total Gate Charge	V_{DS}=-10V, V_{GS}=-4.5V, I_D=-4A		10.5		nC
Qgs	Gate-Source Charge			0.5		
Qgd	Gate-Drain Charge			3		
Ciss	Input Capacitance	V_{DS}=-10V, V_{GS}=0V, f=1MHz		220		pF
Coss	Output Capacitance			95		
Crss	Reverse Transfer Capacitance			30		
$t_{d(on)}$	Turn-On Delay Time	V_{DS}=-10V, R_L =2.5Ω R_{GEN}=3Ω, V_{GS}=-4.5V		560		ns
tr	Turn-On Rise Time			4000		
$t_{d(off)}$	Turn-Off Delay Time			400		
tf	Turn-Off Fall Time			4000		

Notes: a. Pulse test: pulse width≦ 300us, duty cycle≦ 2%, Guaranteed by design, not subject to production testing.
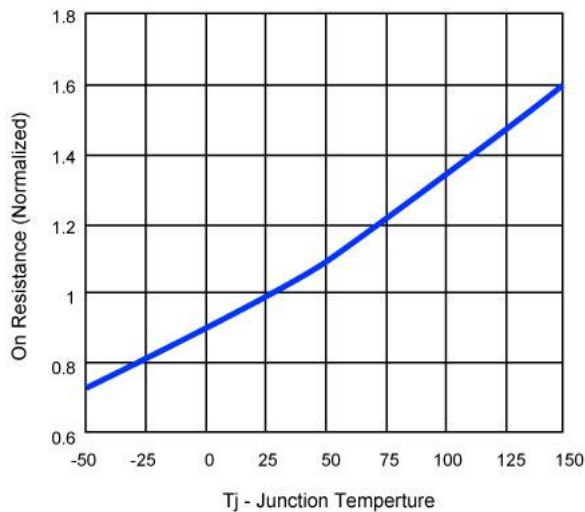
b. Matsuki Electric/ Force mos reserves the right to improve product design, functions and reliability without notice.
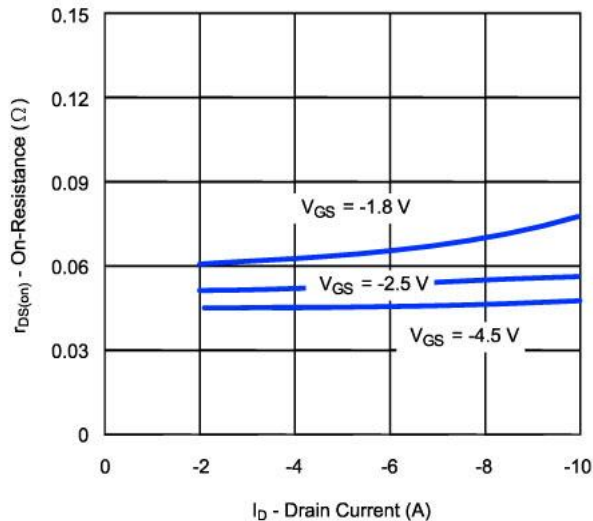
Force mos
Matsuki Electric

P-Channel 20-V (D-S) MOSFET，ESD Protection
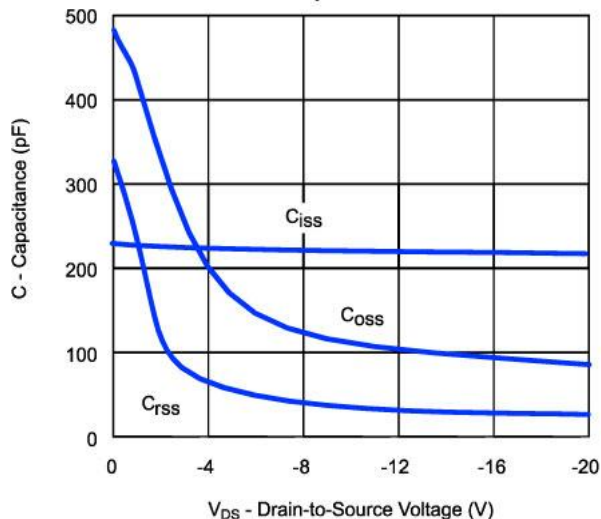
Typical Characteristics (TJ =25℃ Noted)
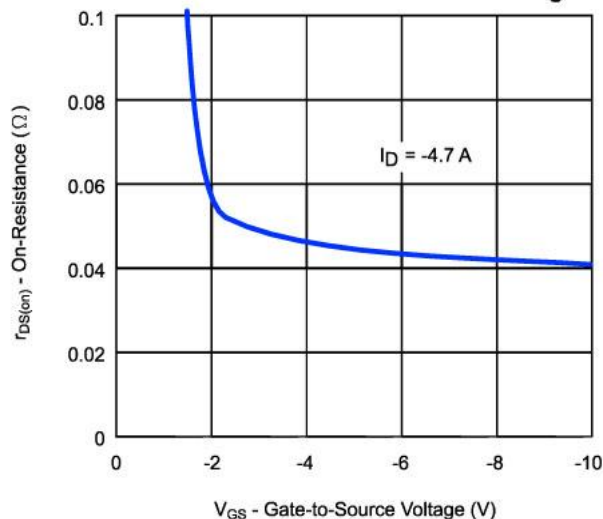

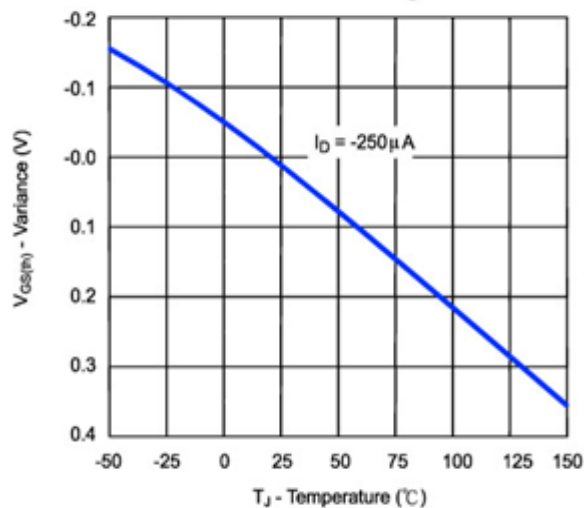On Resistance vs. Junction Temperture
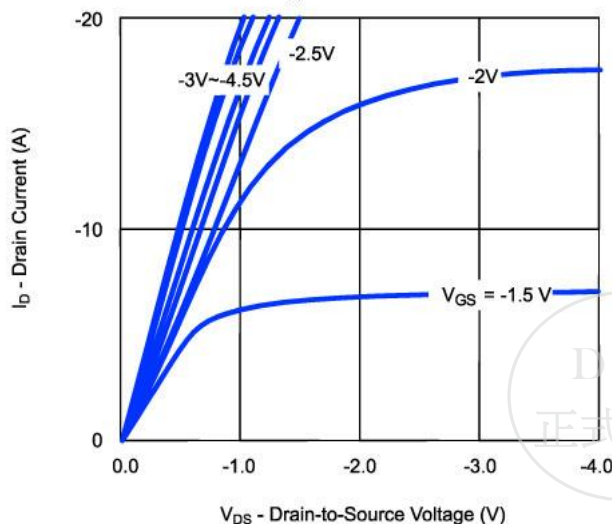

On-Resistance vs. Drain Current

Capacitance

On-Resistance vs. Gate-to-Source Voltage

Threshold Voltage

On-Region Characteristics

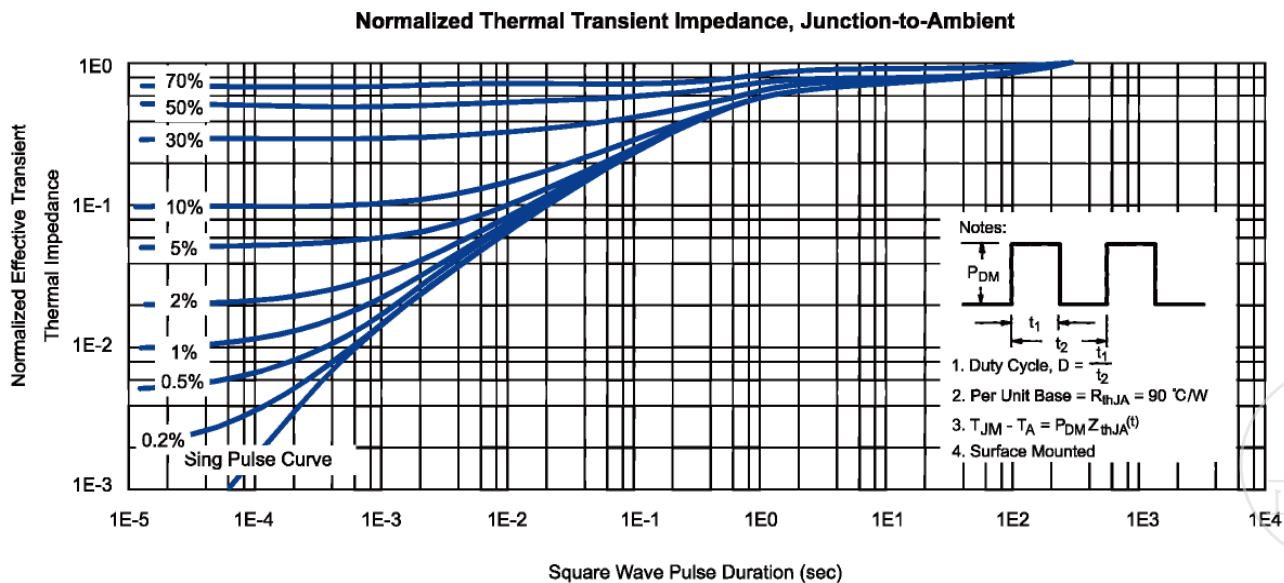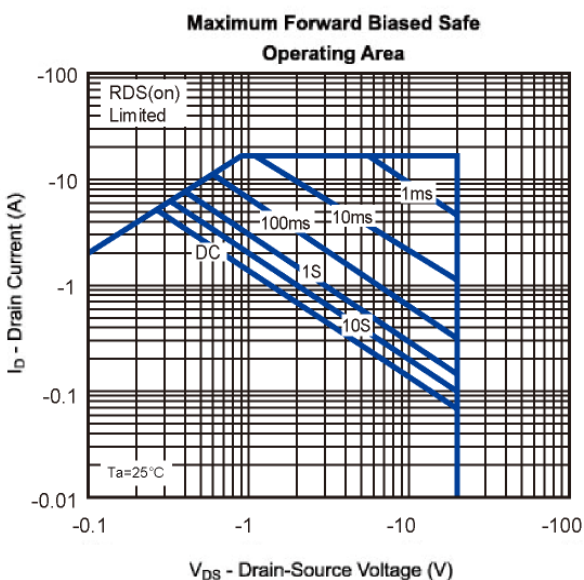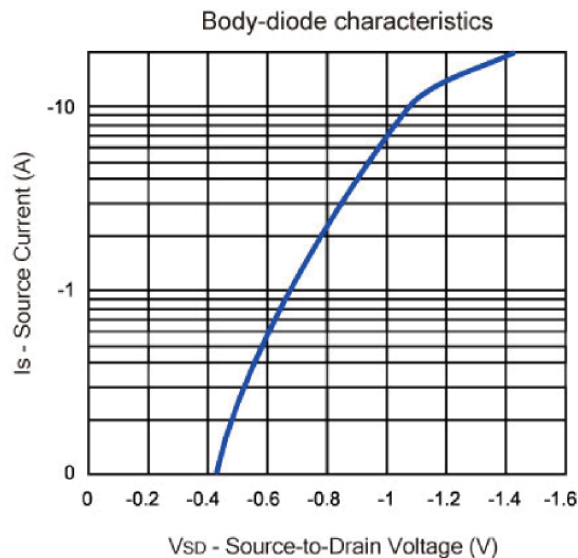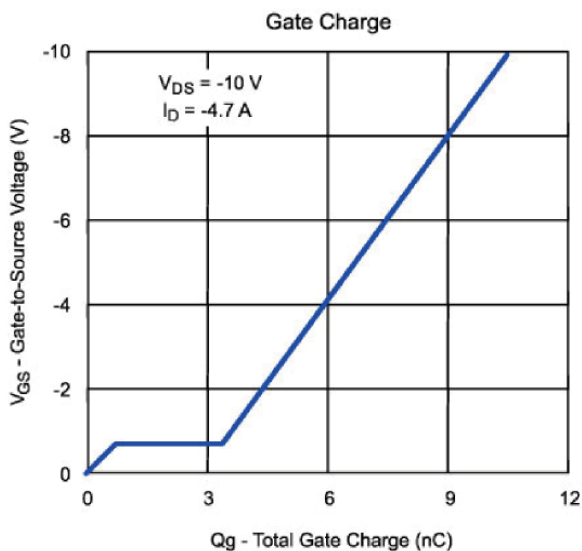**P-Channel 20-V (D-S) MOSFET，ESD Protection**

Typical Characteristics (TJ =25℃ Noted)

Gate Charge

$V_{DS} = -10$ V
$I_D = -4.7$ A

Qg - Total Gate Charge (nC)
V_{GS} - Gate-to-Source Voltage (V)

Body-diode characteristics

I_S - Source Current (A)
V_{SD} - Source-to-Drain Voltage (V)

Maximum Forward Biased Safe Operating Area

RDS(on) Limited
1ms
10ms
100ms
DC
1S
10S
Ta=25℃

I_D - Drain Current (A)
V_{DS} - Drain-Source Voltage (V)

Normalized Thermal Transient Impedance, Junction-to-Ambient

Normalized Effective Transient Thermal Impedance

70%
50%
30%
10%
5%
2%
1%
0.5%
0.2%
Sing Pulse Curve

Notes:
P_{DM}
t_1
t_2
1. Duty Cycle, D = $\frac{t_1}{t_2}$
2. Per Unit Base = R_{thJA} = 90 ℃/W
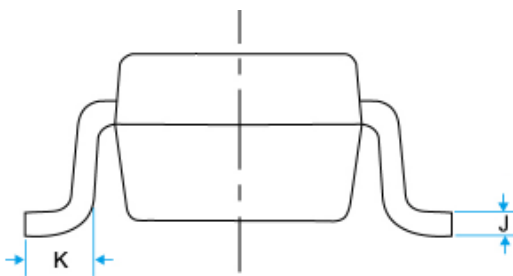3. $T_{JM} - T_A = P_{DM} Z_{thJA}^{(t)}$
4. Surface Mounted

Square Wave Pulse Duration (sec)

P-Channel 20-V (D-S) MOSFET，ESD Protection

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
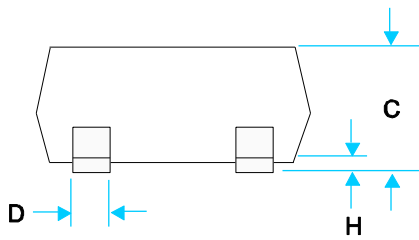
X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for MOSFET *category:*

Click to view products by MQTSUKI *manufacturer:*

Other Similar products are found below :

614233C 648584F FDPF9N50NZ IRFD120 IRFF430 JANTX2N5237 2N7000 FCA20N60_F109 FDZ595PZ 2SK2267(Q) 2SK2545(Q,T) 405094E 423220D MIC4420CM-TR VN1206L 614234A 715780A SSM6J414TU,LF(T 751625C PSMN4R2-30MLD TK31J60W5,S1VQ(O 2SK2614(TE16L1,Q) DMN1017UCP3-7 EFC2J004NUZTDG FCAB21350L1 P85W28HP2F-7071 DMN1053UCP4-7 NTE2384 NTE2969 NTE6400A DMN61D9UWQ-13 US6M2GTR DMN31D5UDJ-7 SSM6P54TU,LF DMP22D4UFO-7B IPS60R3K4CEAKMA1 DMN1006UCA6-7 DMN16M9UCA6-7 STF5N65M6 STU5N65M6 C3M0021120D DMN13M9UCA6-7 BSS340NWH6327XTSA1 MCM3400A-TP DMTH10H4M6SPS-13 IPS60R1K0PFD7SAKMA1 IPS60R360PFD7SAKMA1 IPS60R600PFD7SAKMA1 IPS60R210PFD7SAKMA1 DMN2990UFB-7B