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Approved by:
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SPECIFICATION

.....PRODUCT: P-Channel High Density Trench

.....MODEL: MAR 6 4 0 1 SOT23

HOPE MICROELECTRONIC CO.,LIMITED

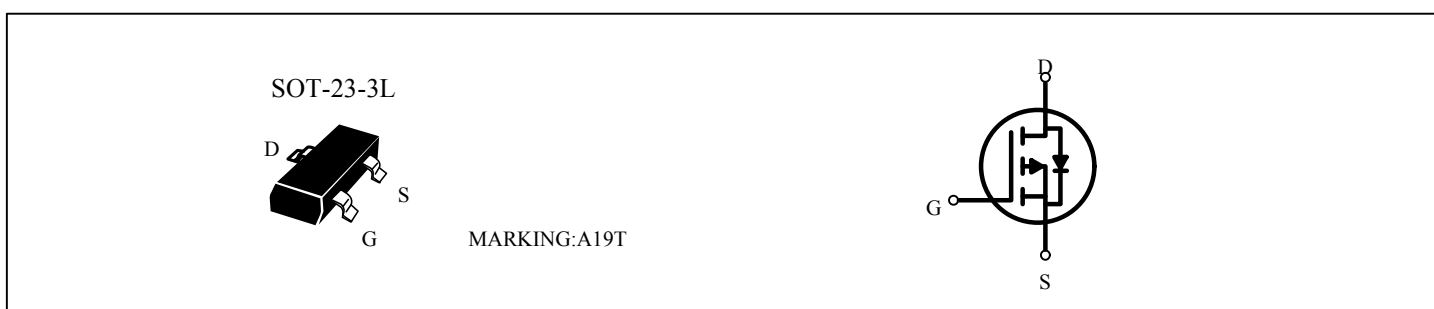
P-Channel High Density Trench MOSFET

MAR6401

PRODUCT SUMMARY		
V _{DSS}	I _D	R _{DS(on)} (m-ohm) Max
-30V	-4.2A	64 @ V _{GS} = -10V
		75 @ V _{GS} = -4.5V
		120 @ V _{GS} = -2.5V

FEATURES

- Super high dense cell trench design for low R_{DS(on)}.
- Rugged and reliable.
- SOT-23-3L package.



ABSOLUTE MAXIMUM RATINGS (T_A = 25 °C unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V _{DS}	-30	V
Gate-Source Voltage	V _{GS}	± 12	V
Drain Current-Continuous ^a @ T _A = 25 °C -Pulse ^b	I _D	-4.2	A
	I _{DM}	-16	A
Drain-Source Diode Forward Current ^a	I _S	-2.2	A
Maximum Power Dissipation ^a	P _D	1.25	W
Operating Junction and Storage Temperature Range	T _J , T _{STG}	- 55 to 150	°C

THERMAL CHARACTERISTICS

Parameter	Symbol	Typ ^c	Max	Unit
Thermal Resistance, Junction-to-Ambient ^a	R _{thJA}	75	100	°C/W

Note :

a. Surface Mounted on FR4 Board , t ≤ 5sec .

b. Pulse Test : Pulse width ≤ 300us , Duty Cycle ≤ 2% .

ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ ^c	Max	Unit
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} = 0V , I _D = -250uA	- 30			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -24V , V _{GS} = 0V			-1	uA
Gate-Body Leakage	I _{GSS}	V _{GS} = -12V , V _{DS} = 0V			-100	nA
ON CHARACTERISTICS^b						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250uA	-0.5		-1.3	V
Drain-Source On-State Resistance	R _{DS(on)}	V _{GS} = -10V , I _D = -4.2A			64	m-ohm
		V _{GS} = -4.5V , I _D = -3.0A			75	m-ohm
		V _{GS} = -2.5V , I _D = -1.2A			120	m-ohm
DRAIN-SOURCE DIODE CHARACTERISTICS^b						
Diode Forward Voltage	V _{SD}	V _{GS} = 0V , I _S = -1.0A			-1.2	V
DYNAMIC CHARACTERISTICS^c						
Input Capacitance	C _{ISS}	V _{DS} = 15V , V _{GS} = 0V f = 1.0MHz		1325		pF
Output Capacitance	C _{OSS}			172		pF
Reverse Transfer Capacitance	C _{RSS}			140		pF
SWITCHING CHARACTERISTICS^c						
Turn-On Delay Time	t _{D(ON)}	V _{DD} = -15V , I _D = -1A V _{GEN} = -4.5V R _L = 15 ohm R _{GEN} = 10 ohm		5		ns
Rise Time	t _r			3		ns
Turn-Off Delay Time	t _{D(OFF)}			30		ns
Fall Time	t _f			10		ns
Total Gate Charge	Q _g	V _{DS} = -15V I _D = -1A V _{GS} = -10V		27.8		nC
Gate-Source Charge	Q _{gs}			3.2		nC
Gate-Drain Charge	Q _{gd}			2.72		nC

Note :

b. Pulse Test : Pulse width ≤ 300us , Duty Cycle ≤ 2% .

c. Guaranteed by design , not subject to production testing .