

VCMNT32A DFN2020

● Features

N-MOSFET

VDS	VGS	RDSon MAX	ID
20V	±8V	1R@4V5 1R@2V5	0.8A

PNP BJT

VCEO	VBEO	VCESAT MAX	IC
-30V	-6V	-500mV	-1.5A

● General Description

VCMNT32A combines an N-Channel enhancement mode MOSFET and a Media Power PNP BJT. The tiny and thin outline saves PCB consumption.

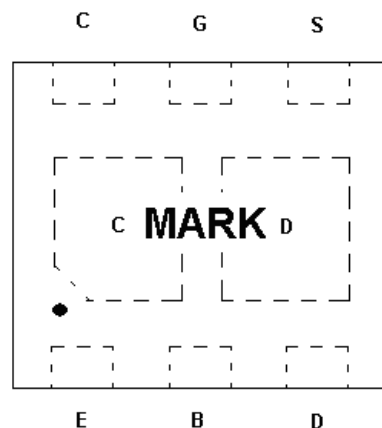
● Applications

Li Battery Charging

● Package Information

● Pin Configuration

Top View



Marking:720

DFN2020: mm			
A	0.70	0.75	0.80
A1	0	0.05	0.02
A3	-	-	0.20
b	0.20	0.30	0.25
D	1.90	2.10	2.00
d	-	-	0.45
D2	0.50	0.70	0.60
e	-	-	0.65
E	1.90	2.10	2.00
E2	0.90	1.10	1.00
f	-	-	0.15
L	0.25	0.35	0.30
z	-	-	0.225

N-Channel Enhancement MOSFET with PNP BJT

● Absolute Maximum Ratings @ TA = 25°C unless otherwise specified

Parameter		Symbol	Ratings	Unit
Drain-Source Voltage		V_{DS}	20	V
Gate-Source Voltage		V_{GS}	± 8	
Drain Current (Note 1)	Continuous	I_D	0.8	A
	Pulsed	I_{DM}	1.5	
Collector-Emitter Voltage		V_{CEO}	-30	V
Emitter-Base Voltage		V_{EBO}	-6	V
Collector Current	Continuous	I_C	-1.5	A
	Pulsed	I_{CM}	-3	
Power Dissipation Derating above $T_A = 25^\circ\text{C}$ (Note 1)		P_d	1	W
Operating and Storage Temperature Range		T_J, T_{STG}	-55 to +150	$^\circ\text{C}$

Note: 1. Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inches. The rating is for each chip in the package. For customized application, PD should be carefully considered as a critical constraint condition

● Electrical Characteristics @ TA = 25°C unless otherwise specified

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
N-channel MOSFET						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	20	--	--	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 20V, V_{GS} = 0V$	--	--	1	μA
Gate-Body Leakage	I_{GSS}	$V_{GS} = \pm 8V, V_{DS} = 0V$	--	--	± 10	μA
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	0.45	--	1.20	V
Static Drain-Source On-Resistance Drain-Source Diode Forward Voltage	$R_{DS(ON)}$	$I_D = 1A, V_{GS} = 4.5V$	--	--	1	R
	V_{SD}	$I_D = 1A, V_{GS} = 2.5V$	--	--	1	
		$I_S = 1.6A, V_{GS} = 0V$	0.5	--	1.2	V
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = 6V, R_L = 6R, I_D = 1A,$ $V_{GEN} = 4.5V, R_G = 6R$	--	13	--	ns
Turn-Off Delay Time	$t_{d(off)}$		--	42	--	
Input Capacitance	C_{ISS}	$V_{DS} = 6V, V_{GS} = 0V,$ $f = 1.0\text{ MHz}$	--	376		pF
Output Capacitance	C_{OSS}		--	187		
Reverse Transfer Capacitance	C_{RSS}		--	78	--	
PNP BJT						
Collector-Base Breakdown Voltage	BV_{CBO}	$I_C = -50\mu A$	-30	-40		V
Collector-Emitter Breakdown Voltage	BV_{CEO}	$I_C = -1mA$		-30		V
Emitter-Base Breakdown Voltage	BV_{EBO}	$I_E = -50\mu A$	-6	-10		V
DC Current Gain	HFE	$V_{CE} = -1.8V, I_C = -500mA$	100	160	360	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = -0.8\text{ A}, I_B = -10mA$	--	-0.2	-0.5	V
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = -1.5\text{ A}, I_B = -50mA$	--	-0.3	-0.5	V

Note: 2. Short duration test pulse used to minimize self-heating effect.

● N-Channel MOSFET Typical Performance Characteristics

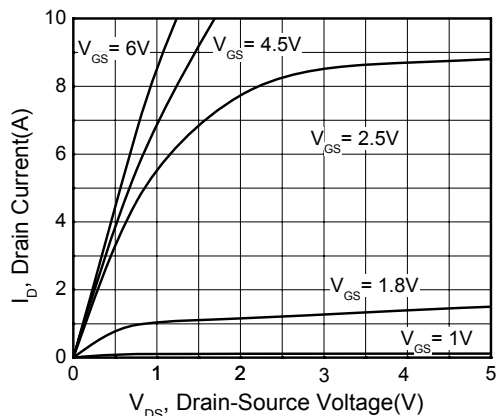


Fig1. Output Characteristics

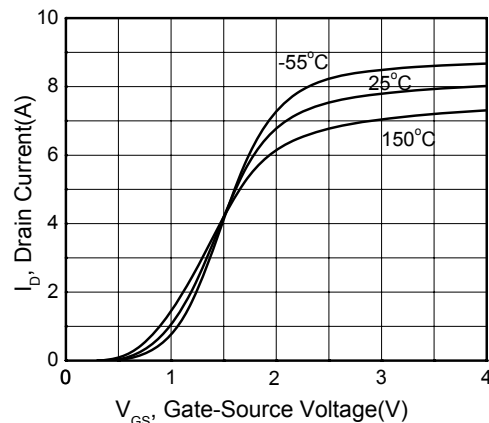


Fig2. Transfer Characteristics

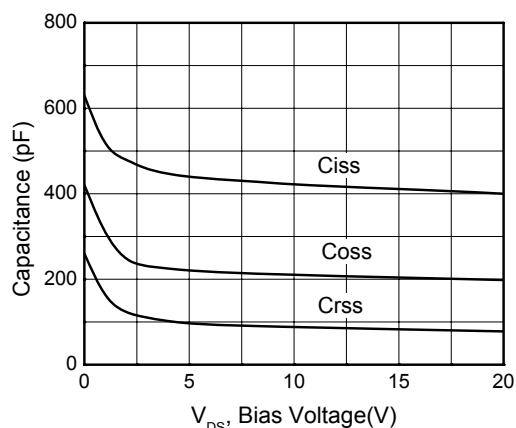


Fig3. Capacitance

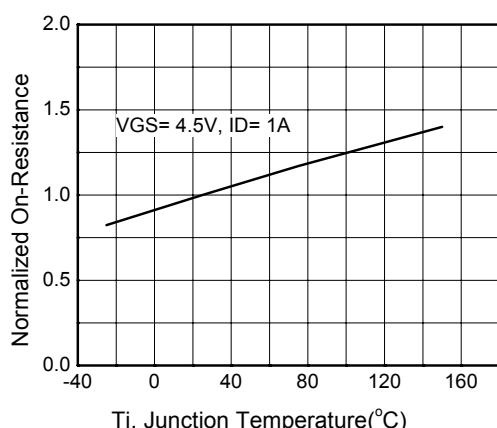


Fig4. On-Resistance vs. Temperature

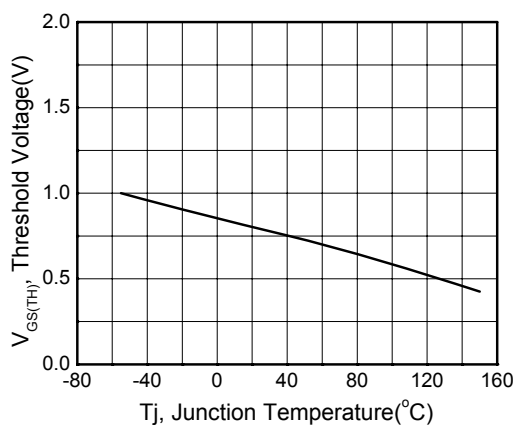


Fig 5. Threshold Voltage

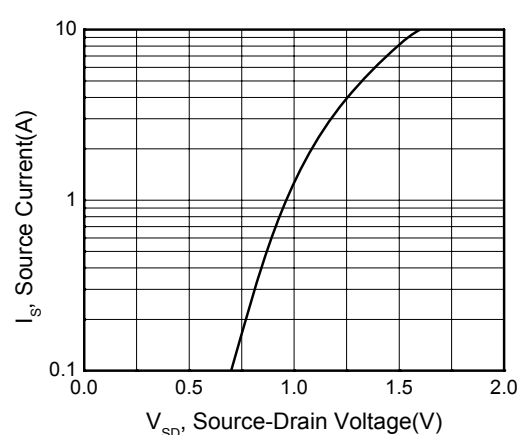
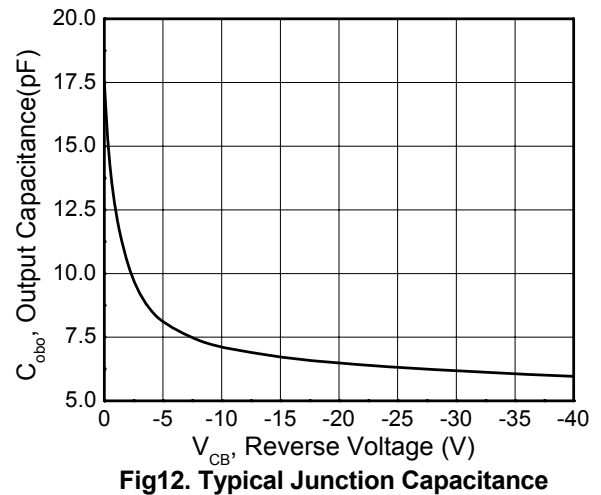
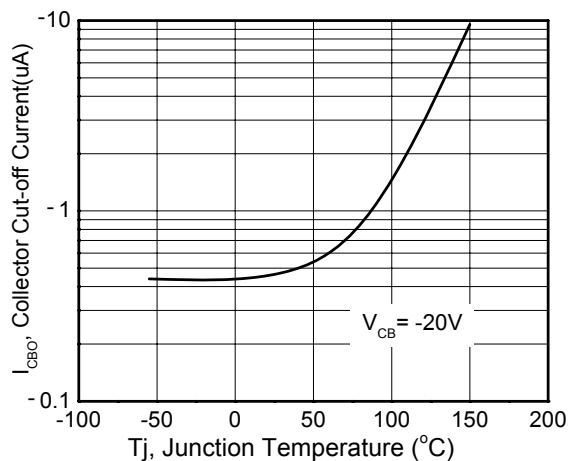
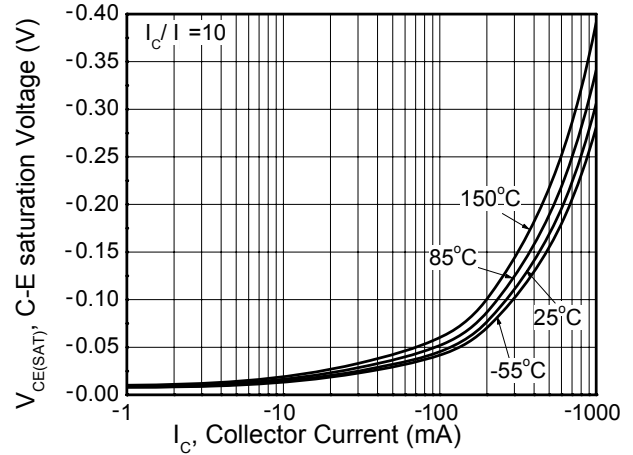
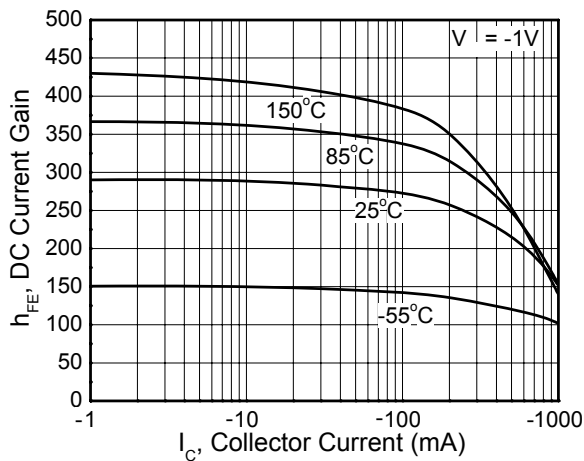
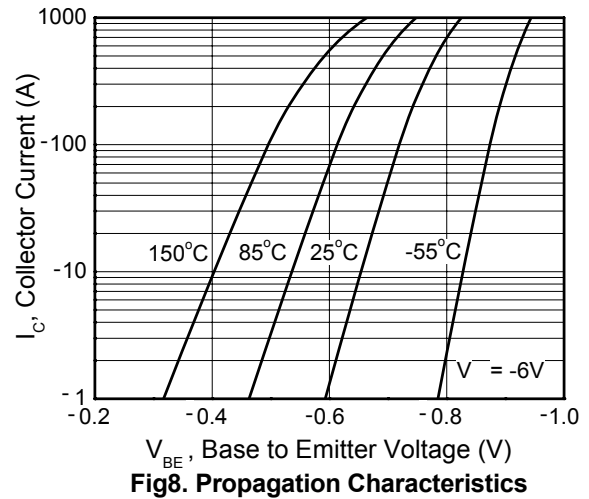
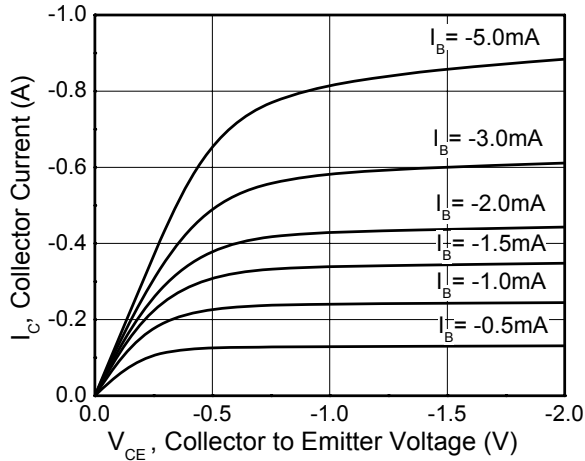


Fig6. Diode Forward Characteristics

N-Channel Enhancement MOSFET with PNP BJT

● PNP BJT Typical Performance Characteristics





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