

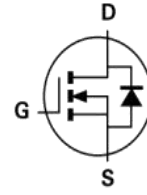


CS50N20A

N-Channel Enhancement Mode MOSFET

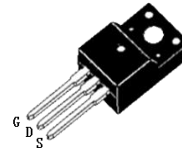
MAIN CHARACTERISTICS

I_D	50A
V_{DSS}	200V
$R_{DS(on)}$ -typ (@ $V_{GS}=10V$)	48m Ω

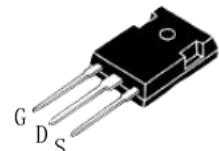


FEATURES

This device is suitable for use as a Battery protection or in other Switching application.



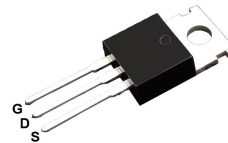
TO-220F



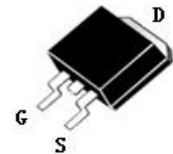
TO-247

APPLICATIONS

- Battery protection
- Load switch
- Uninterruptible power supply



TO-220C



TO-263C

MECHANICAL DATA

- Case: Molded plastic
- Mounting Position: Any
- Molded Plastic: UL Flammability Classification Rating 94V-0
- Lead free in compliance with EU RoHS 2011/65/EU directive
- Solder bath temperature 275°C maximum, 10s per JESD 22-B106

Product specification classification

Part Number	Package	Mode Name	Pack
CS50N20A8	TO-220F (1.3mm)	CS50N20A	Tube
CS50N20A6	TO-247	CS50N20A6	Tube
CS50N20AP	TO-220C	CS50N20AP	Tube
CS50N20AT	TO-263C	CS50N20AT	Tube



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Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	200	V
Gate-Source Voltage	V_{GS}	±20	V
Continue Drain Current	I_D	50	A
Pulsed Drain Current (Note1)	I_{DM}	200	A
Power Dissipation	P_D	158	W
Single Pulse Avalanche Energy (Note1)	E_{AS}	800	mJ
Operating Temperature Range	T_J	150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C
Thermal Resistance, Junction to Case	$R_{\theta JC}$	0.79	°C/W
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	40	°C/W

Note1:Pulse test: 300 μs pulse width, 2 % duty cycle

Electrical Characteristics at Tc=25°C unless otherwise specified

Characteristics	Test Condition	Symbol	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	$V_{GS} = 0 V, I_D = 250 \mu A$	BV_{DSS}	200	-	-	V
Drain-Source Leakage Current	$V_{DS} = 200 V, V_{GS} = 0 V$	I_{DSS}	-	-	1	μA
Gate Leakage Current	$V_{GS} = \pm 20 V, V_{DS} = 0 V$	I_{GSS}	-	-	±100	nA
Gate-Source Threshold Voltage	$V_{DS} = V_{GS}, I_D = 250 \mu A$	$V_{GS(th)}$	2	-	4	V
Drain-Source On-State Resistance	$V_{GS} = 10 V, I_D = 26A$	$R_{DS(on)}$	-	48	58	mΩ
Forward Transconductance	$V_{DS} = 40 V, I_D = 14 A$	gfs	-	24	-	S
Input Capacitance	$V_{DS}=25V, V_{GS}=0V, f=1MHz$	C_{iss}	-	2900	-	pF
Output Capacitance		C_{oss}	-	360	-	pF
Reverse Transfer Capacitance		C_{rss}	-	81	-	pF
Turn-on Delay Time(Note2)		$t_{d(ON)}$	-	28	-	ns
Rise Time(Note2)	$V_{DD}=100V, V_{GS}=10V, RG=25\Omega, I_D=28A$	t_r	-	250	-	ns
Turn-Off Delay Time(Note2)		$t_{d(OFF)}$	-	305	-	ns
Fall Time(Note2)		t_f	-	220	-	ns
Total Gate Charge(Note2)		Q_G	-	105	-	nC
Gate to Source Charge(Note2)	$V_{DS}=160V, V_{GS}=10V, I_D=28A$	Q_{GS}	-	16	-	nC
Gate to Drain Charge(Note2)		Q_{GD}	-	55	-	nC

Source-Drain Diode Characteristics at Ta=25°C unless otherwise specified

Characteristics	Test Condition	Symbo	Min.	Typ.	Max.	Unit
Maximun Body-Diode Continuous Current		I_S	-	-	50	A
Maximun Body-Diode Pulsed Current(Note2)		I_{SM}	-	-	200	A
Drain-Source Diode Forward Voltage	$V_{GS}=0V, I_S=28A, T_J=25^\circ C$	V_{SD}	-	-	1.4	V
Reverse Recovery Time(Note2)	$T_J = 25^\circ C, I_F = 28A$	trr	-	215	-	ns
Reverse Recovery Charge(Note2)		Qrr	-	2	-	nC

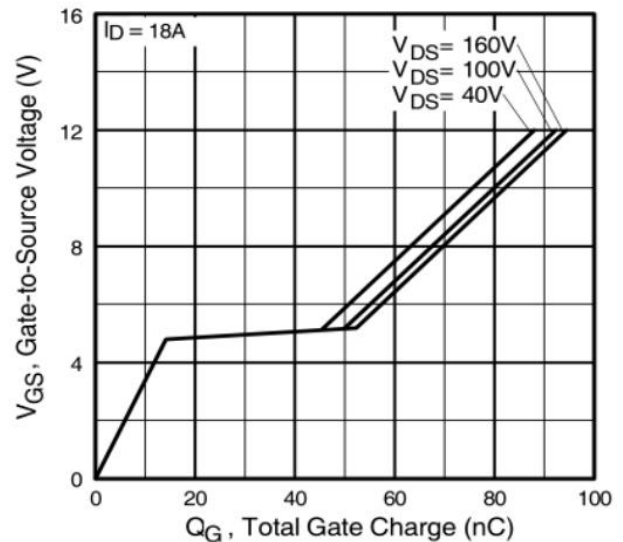
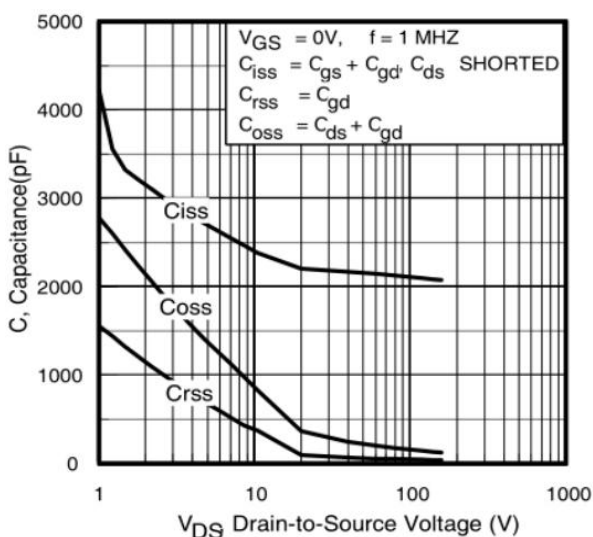
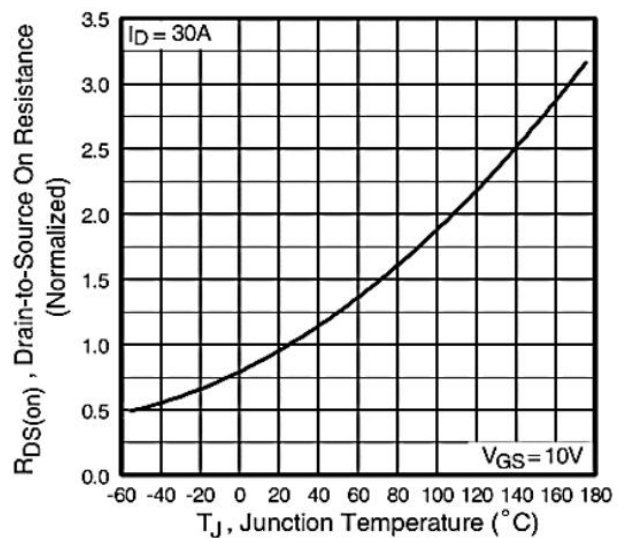
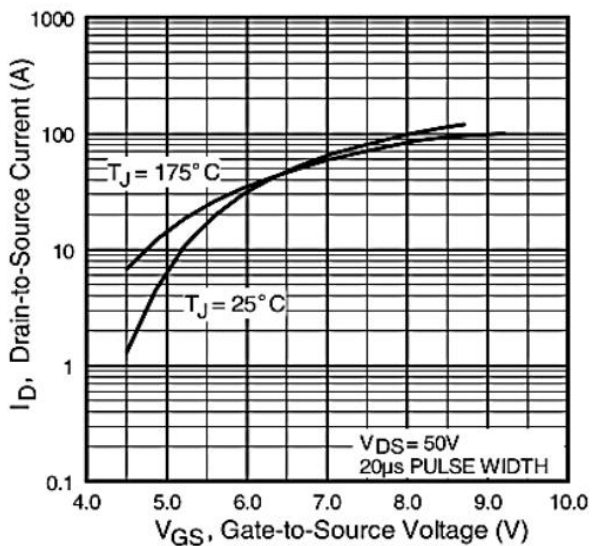
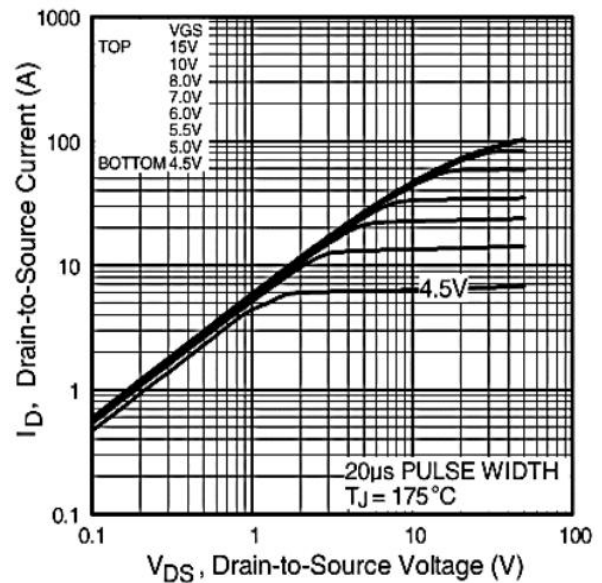
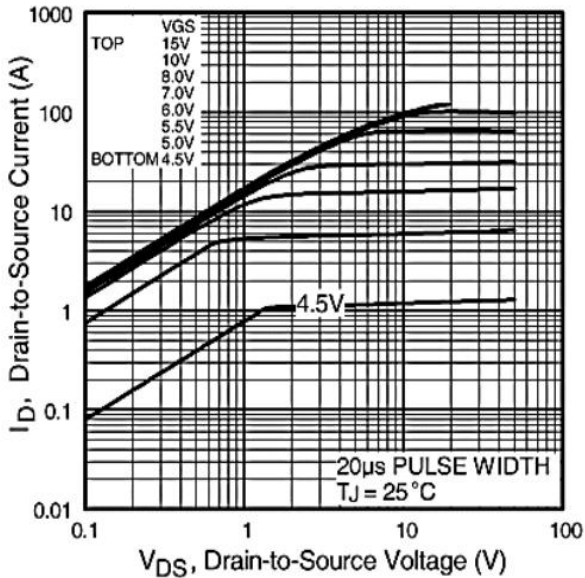
Note2:Pulse test: 300 μs pulse width, 2 % duty cycle



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RATINGS AND CHARACTERISTIC CURVES

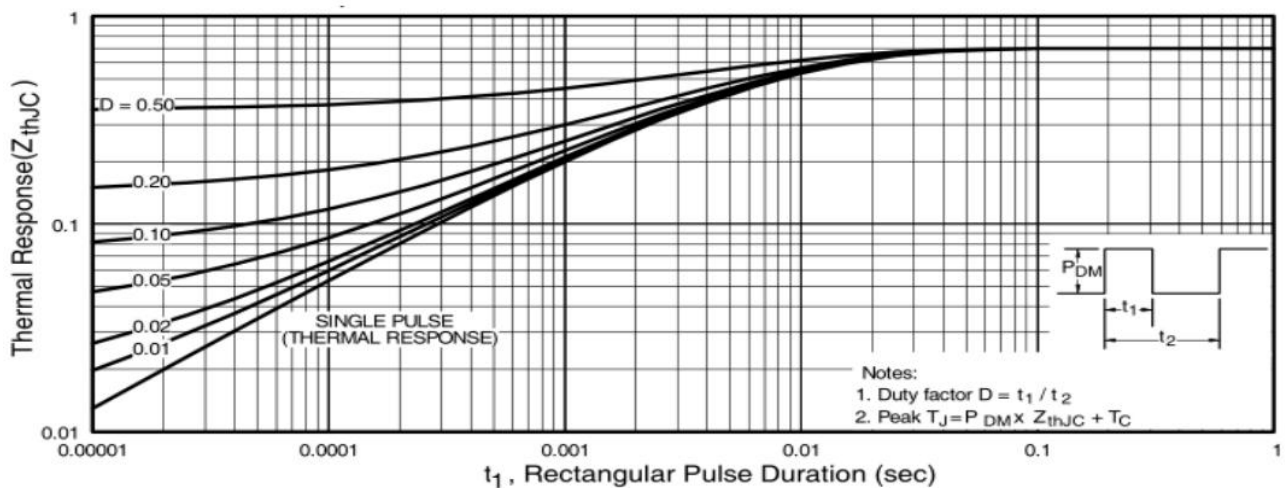
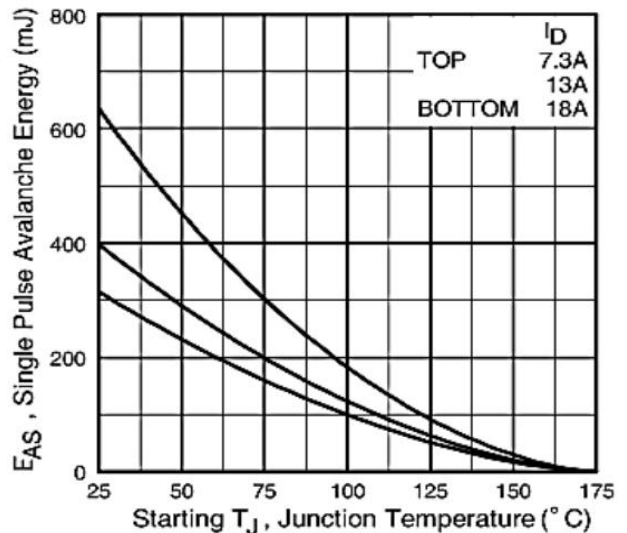
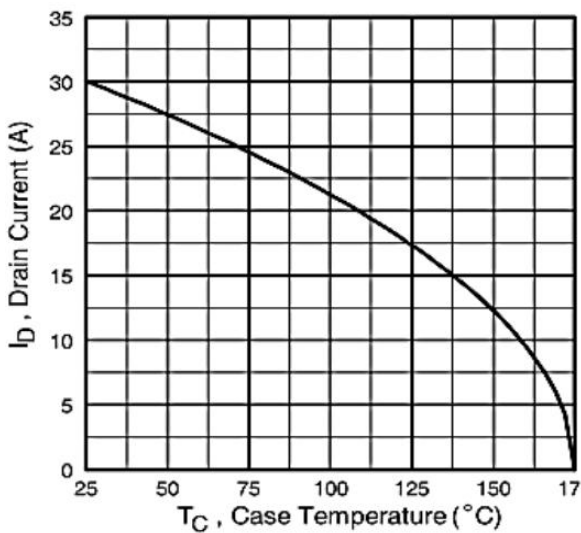
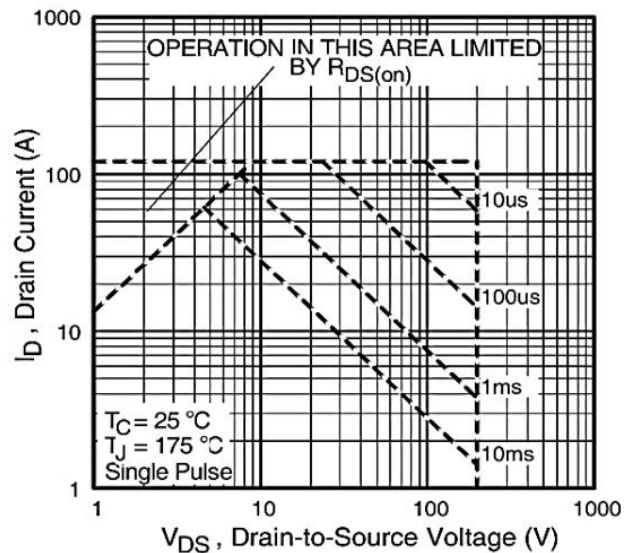
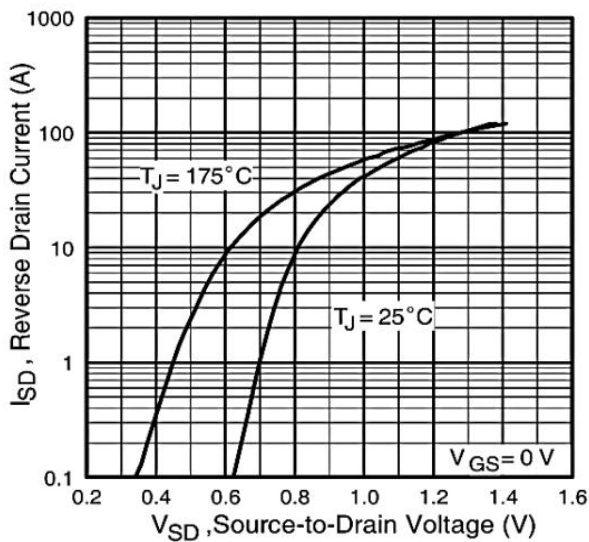




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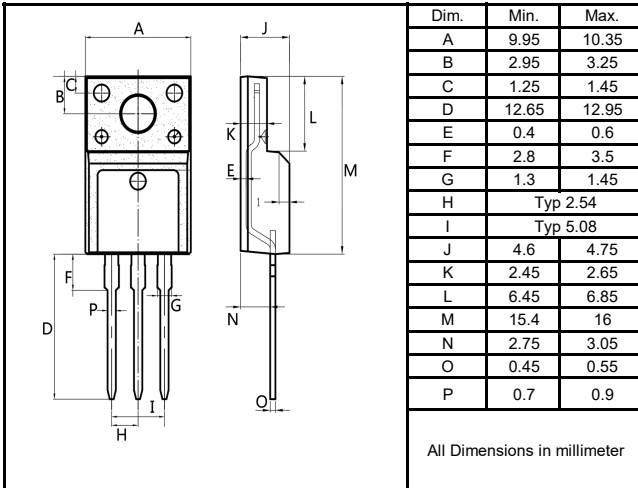


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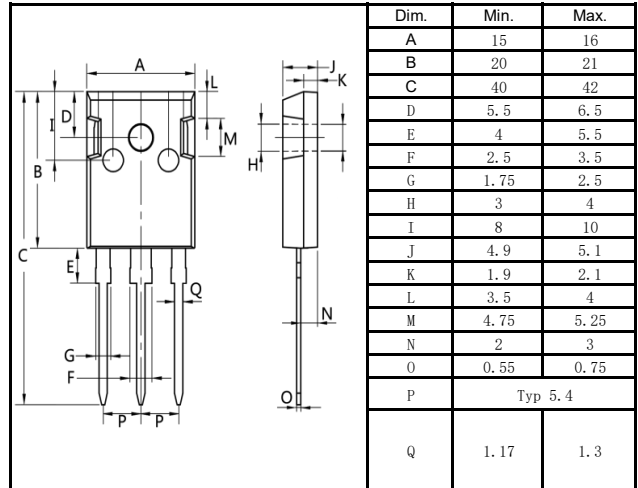
N-Channel Enhancement Mode MOSFET

Package Outline Dimensions millimeters

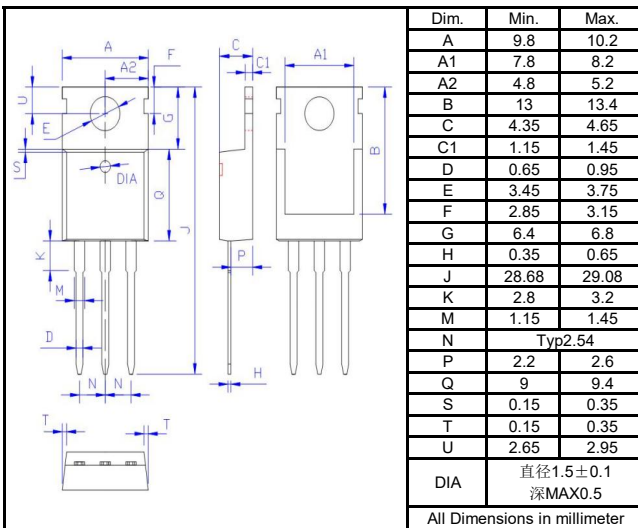
T0-220F



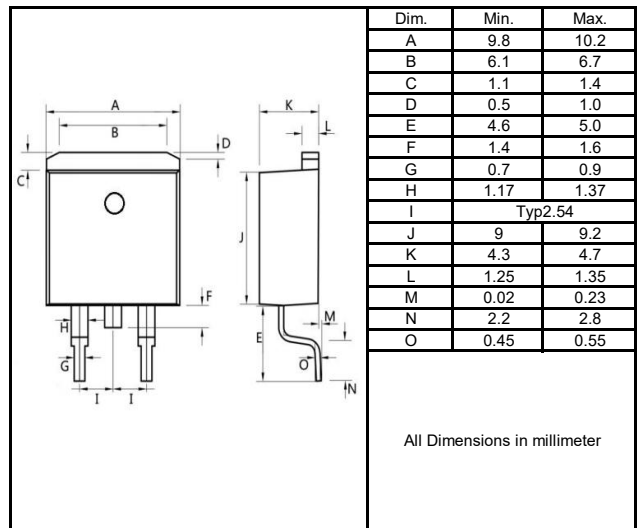
T0-247



T0-220C



T0-263C

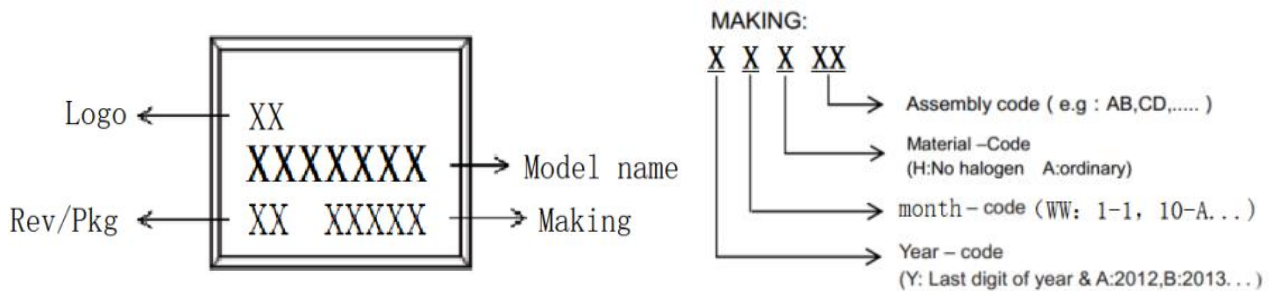




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Marking on the body



packing instruction

PKG	最小包装	内盒	外箱
TO-220F TO-220C TO-263C			
	50pcs/管	1000pcs/盒	5000pcs/箱
TO-247			
	30PCS/管	600pcs/盒	2400pcs/箱
TO-263C			
	800pcs/盘	1600pcs/盒	8000pcs/箱

Notice

All product, product specifications and data are subject to change without notice to improve. The right to explain is owned by LINGXUN electronics company.

Confirm that operation temperature is within the specified range described in the product specification. Avoid applying power exceeding normal rated

power; exceeding the power rating under steady-state loading condition may negatively affect product performance and reliability.

LINGXUN electronics shall not be in any way responsible or liable for failure induced under deviant condition from what is defined in this document.