

Performance:

- $V_{CE} = 650V$
- $I_C = 30A @ V_{CE} = 100V$
- $V_{CE(sat)} = 1.7V$

Features:

- High ruggedness performance.
- $10\mu s$ short circuit capability.
- Positive $V_{CE(sat)}$ temperature coefficient.
- High efficiency for motor control.

100% @ 100%
100% @ 100%

Maximum ratings

Symbol	Parameter	Values	Unit
CES	Collector-emitter voltage	650	V
GES	Gate-emitter voltage	±20	V
C	Continuous collector current ($T_c=25^\circ\text{C}$)	60	A
	Continuous collector current ($T_c=100^\circ\text{C}$)	30	A
CM	Pulsed collector current, I_p limited by v_{jmax}	120	A
F	Diode continuous forward current ($T_c=100^\circ\text{C}$)	30	A
FM	Diode maximum current, I_p limited by v_{jmax}	80	A
sc	Short circuit withstand time	10	µs
tot	Power dissipation ($T_c=25^\circ\text{C}$)	214	W
	Power dissipation ($T_c=100^\circ\text{C}$)	107	W
vj	Operating junction temperature range	-40 to +175	
stg	Storage temperature range	-55 to +150	

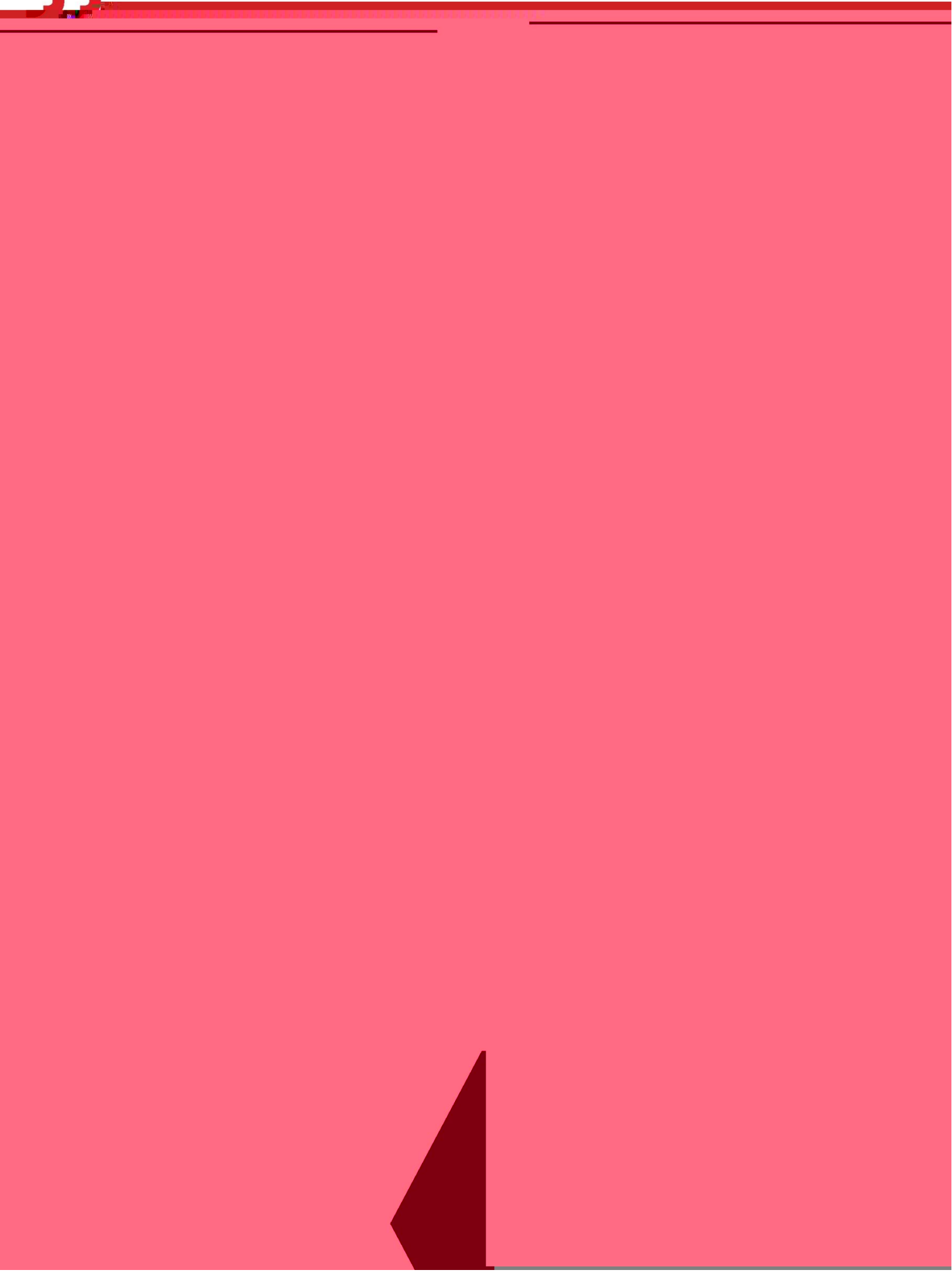
Thermal characteristics

Symbol	Parameter	Values		Unit
		Typ.	Max.	
th(j-c)	Thermal resistance, junction to case for IGBT	-	0.7	K/ W
th(j-c)	Thermal resistance, junction to case for Diode	-	1.2	K/ W
th(j-a)	Thermal resistance, junction to ambient	-	40	K/ W



Symbol	Parameter	Test condition	Values			Unit
			Min.	Typ.	Max.	
CES	Collector-emitter breakdown voltage	$V_{GE}=0V, I_C=250\mu A$	650	-	-	V
CES	Collector-emitter leakage current	$V_{CE}=650V, V_{GE}=0V$	-	-	50	μA
GES	Gate leakage current, forward	$V_{GE}=20V, V_{CE}=0V$	-	-	100	nA
	Gate leakage current, reverse	$V_{GE}=-20V, V_{CE}=0V$	-	-	-100	nA
GE(th)	Gate-emitter threshold voltage	$V_{GE}=V_{CE}, I_C=1mA$	5.2	5.7	6.2	V
CE(sat)	Collector-emitter saturation voltage	$V_{GE}=15V, I_C=30A$	-	1.7	-	V
		$V_{GE}=15V, I_C=30A, v_{j}=175$	-	2.2	-	V

Symbol	Parameter	Test condition	Values			Unit
			Min.	Typ.	Max.	
ies	Input capacitance	$V_{CE}=30V$	-	1978	-	pF
oes	Output capacitance	$V_{GE}=0V$ $f=1MHz$	-	100	-	pF
res	Reverse transfer capacitance	$V_{CC}=520V$	-	23	-	pF
g	Total gate charge	$V_{GE}=15V$ $I_C=30A$	-			



Typical performance characteristics

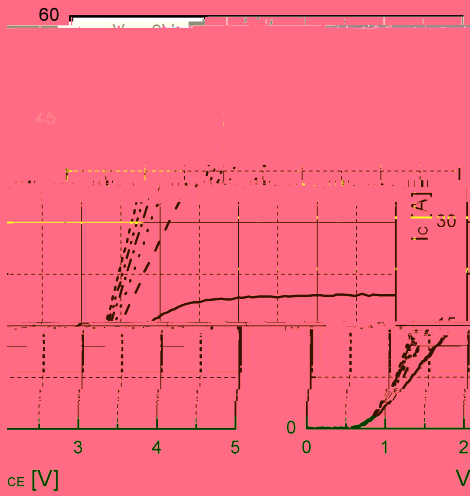


Fig 1. Typical output characteristic ($v_j=25^\circ\text{C}$)

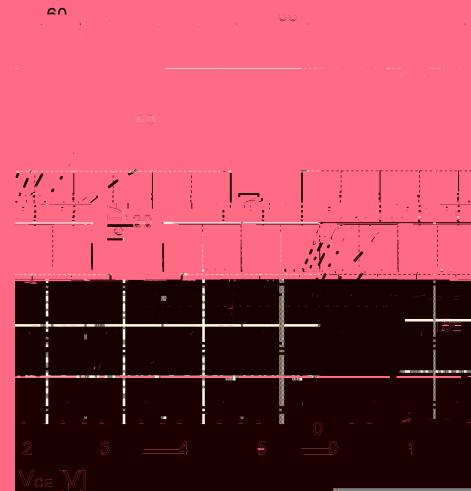


Fig 2. Typical output characteristic($v_j=175^\circ\text{C}$)

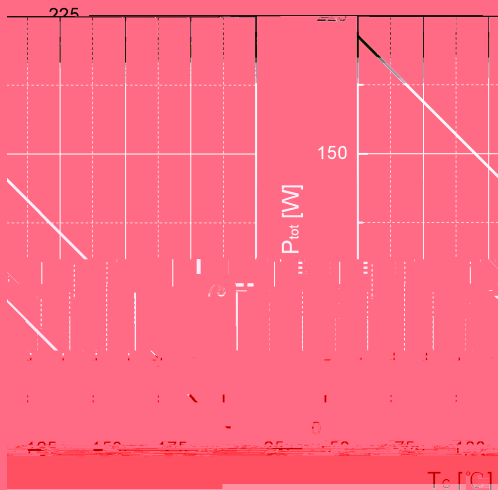


Fig 3. Power dissipation as a function of

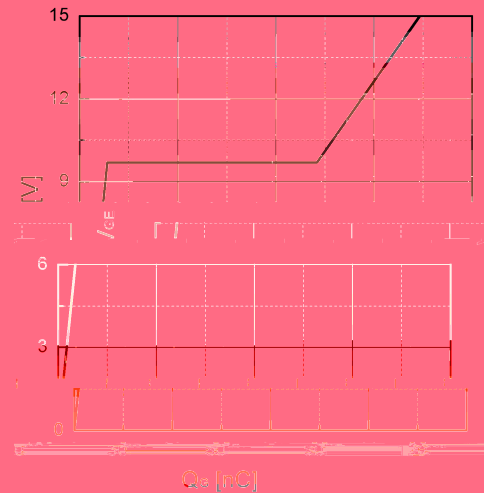


Fig 4. Typical Gate charge

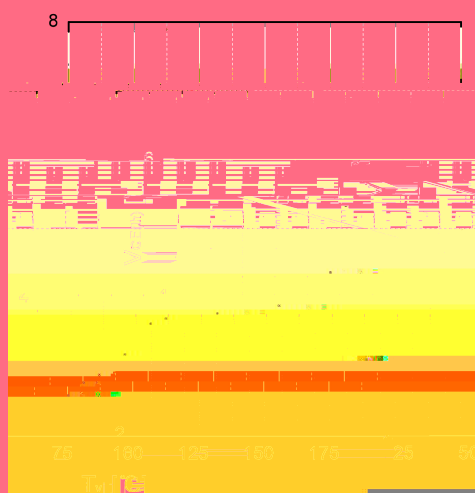


Fig 5. Typical $V_{GE(th)}$ as a function of v_j
($c=1\text{mA}$)

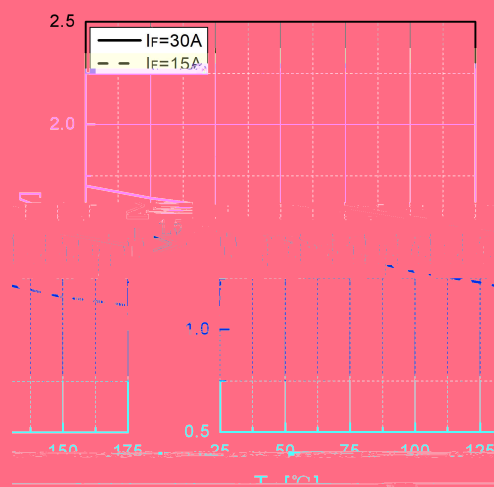


Fig 6. Typical F as a function of v_j

Typical performance characteristics

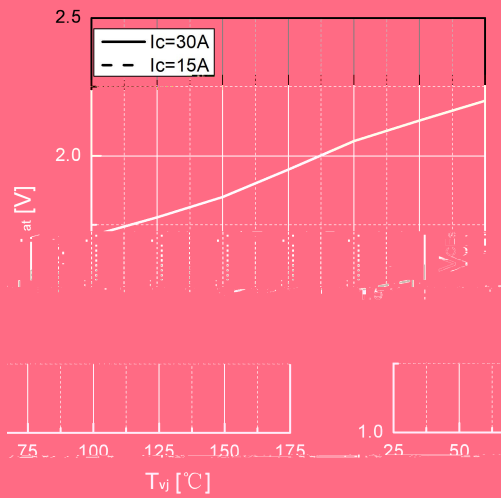


Fig 7. Typical V_{CEsat} as a function of T_{vj}

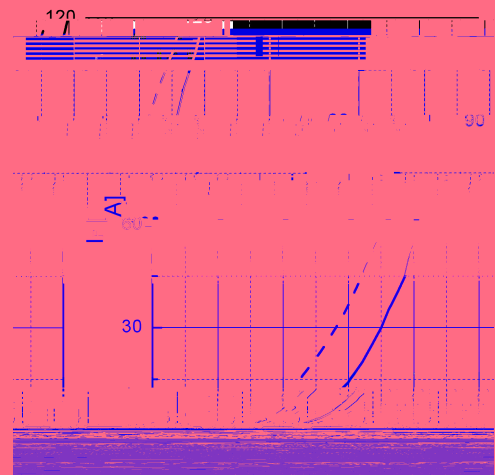


Fig 8. Typical F_T as a function of R_F

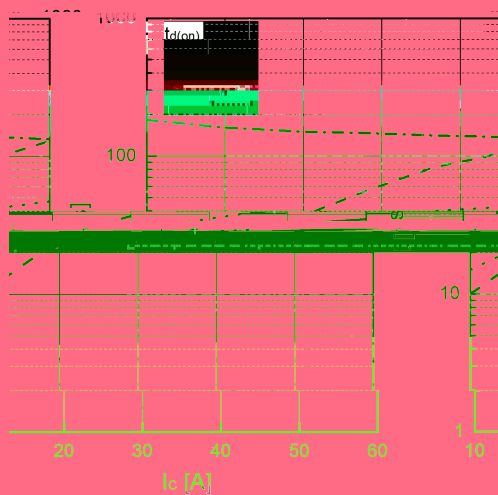


Fig 9. Typical switching time as a function of I_c

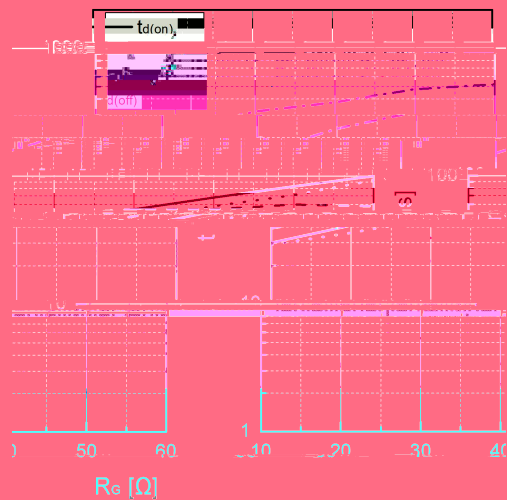


Fig 10. Typical switching times as a function of R_G

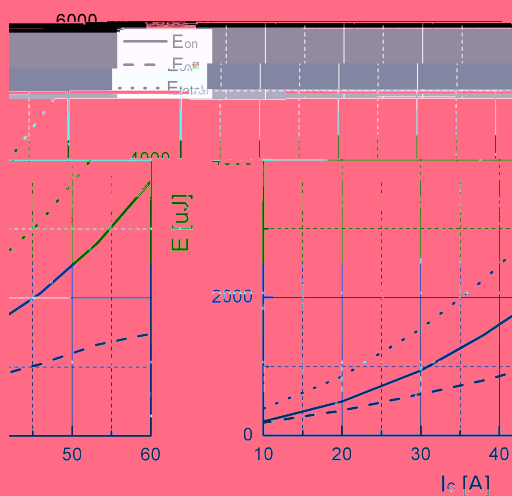


Fig 11. Typical switching energy losses as a function of I_c

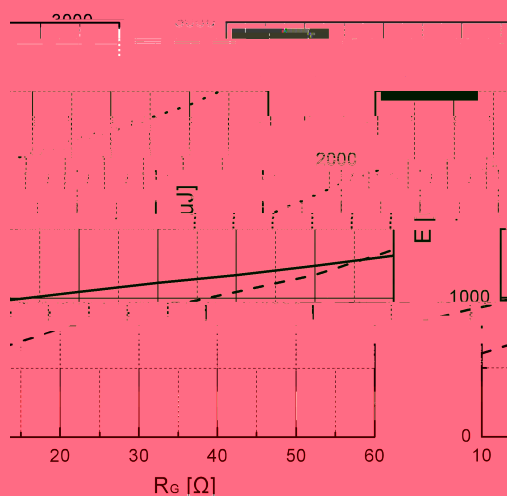


Fig 12. Typical switching energy losses as a function of R_G

Typical performance characteristics

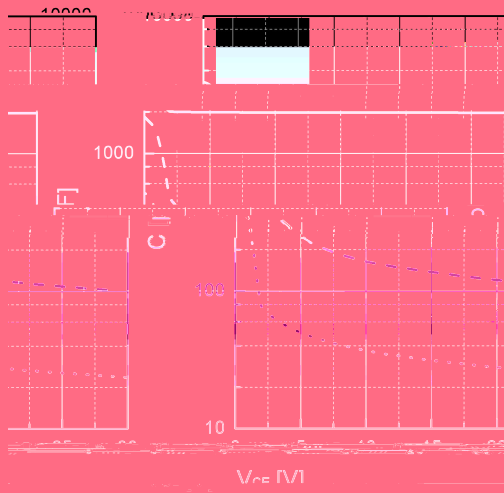


Fig 13. Typical capacitance as a function of V_{CE}
 (f=1Mhz, $V_{GE}=0V$)



Dimensions

Ref.	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	9.90	-	10.20	0.390	-	0.402
B	14.70	-	15.80	0.579	-	0.622
C	9.4	-	9.6			



Date	Revision	Changes
2024-06-03	Rev 1.0	Release of the datasheet
2025-03-09	Rev 1.1	Character update

Disclaimer

PLEASE NOTE - Jiangsu Jintan Microelectronics Co., Ltd. (JJM) reserves the right to amend, correct, modify and enhance the product and/or this document at any time without prior notice. If you intend to purchase this product, please obtain the latest information available before placing your order. The sale of JJM products is governed by JJM's product terms and conditions at the time of purchase and purchasers are solely responsible for their use of the products with no liability on JJM's part to supply application assistance or customization. PRWA_AFP@jjm.com.cn