

General Description

The 65R380Y is power MOSFET using Cmos's advanced super junction technology that can realize very low on-resistance and gate charge. It will provide much high efficiency by using optimized charge coupling technology. These user friendly devices give an advantage of low EMI to designers as well as low switching loss.

Features

- Multi-layer Epitaxial Chip Technology
- Low On-Resistance
- 100% avalanche tested
- RoHS Compliant

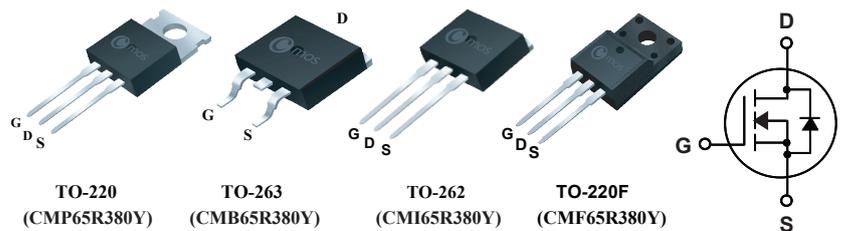
Product Summary

BVDSS	R _{DS(on)} max.	ID
650V	0.36Ω	11A

Applications

- Adapter
- Switching applications
- PFC power supply stages

TO-220/263/262/220F Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	220/263/262	220F	Units
V _{DS}	Drain-Source Voltage	650		V
V _{GS}	Gate-Source Voltage	±30		V
I _D @T _C =25°C	Continuous Drain Current	11	11*	A
I _D @T _C =100°C	Continuous Drain Current	6.7	6.7*	A
I _{DM}	Pulsed Drain Current	44	44*	A
EAS	Single Pulse Avalanche Energy (Note 1)	250		mJ
P _D @T _C =25°C	Total Power Dissipation	83	31	W
T _{STG}	Storage Temperature Range	-55 to 150		°C
T _J	Operating Junction Temperature Range	-55 to 150		°C

* Drain current limited by maximum junction temperature.

Thermal Data

Symbol	Parameter	220/263/262	220F	Unit
R _{θJA}	Thermal Resistance Junction-ambient Max.	62.5	75	°C/W
R _{θJC}	Thermal Resistance Junction-case Max.	1.51	4.03	°C/W

Electrical Characteristics ($T_J=25^{\circ}\text{C}$, unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V$, $I_D=250\mu A$	650	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V$, $I_D=3.2A$	---	315	360	mΩ
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=250\mu A$	2.0	---	4.0	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=650V$, $V_{GS}=0V$	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 30V$, $V_{DS}=0V$	---	---	±100	nA
g_{fs}	Forward Transconductance	$V_{DS}=20V$, $I_D=3.2A$	---	6.2	---	S
R_g	Gate Resistance	$V_{DS}=0V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	18	---	Ω
Q_g	Total Gate Charge	$I_D=10.6A$	---	21	---	nC
Q_{gs}	Gate-Source Charge	$V_{DD}=520V$	---	5.5	---	
Q_{gd}	Gate-Drain Charge	$V_{GS}=10V$	---	8	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=325V$ $V_{GS}=10V$ $R_G=25\Omega$, $I_D=10.6A$	---	20	---	ns
T_r	Rise Time		---	40	---	
$T_{d(off)}$	Turn-Off Delay Time		---	110	---	
T_f	Fall Time		---	36	---	
C_{iss}	Input Capacitance	$V_{DS}=100V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	750	---	pF
C_{oss}	Output Capacitance		---	35	---	
C_{riss}	Reverse Transfer Capacitance		---	3.1	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	11	A
I_{SM}	Pulsed Source Current		---	---	44	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_S=10.6A$, $T_J=25^{\circ}\text{C}$	---	0.89	1.4	V
t_{rr}	Reverse Recovery Time	$di/dt = 100A/\mu s$	---	324	---	ns
Q_{rr}	Reverse Recovery Charge	$V_{DD}=100V$, $I_{SD}=10.6A$	---	3.8	---	μC

Note :

1.The EAS data shows Max. rating . The test condition is $V_{DD}=100V$, $V_{GS}=10V$, $L=20\text{mH}$, $I_{AS}=5A$.

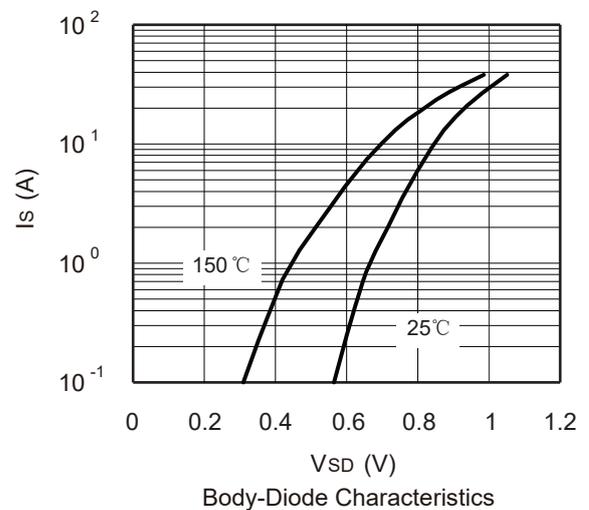
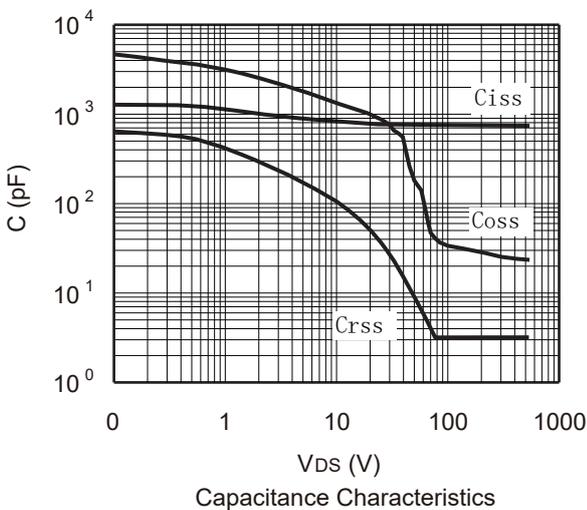
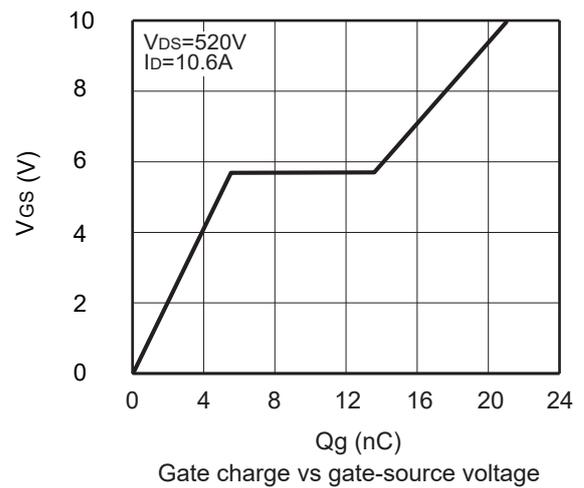
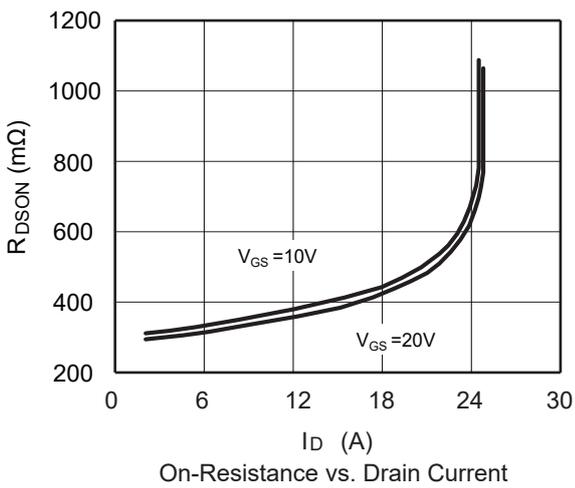
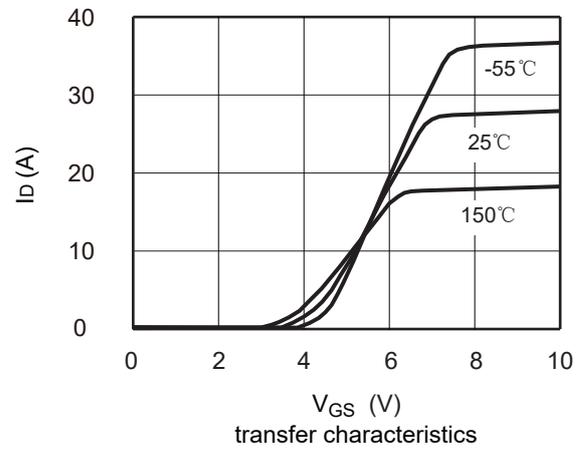
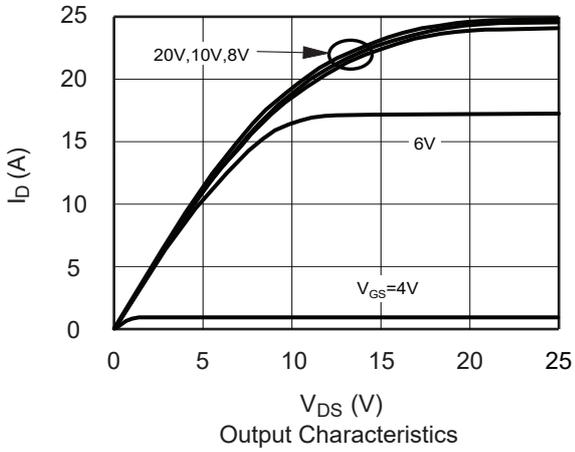
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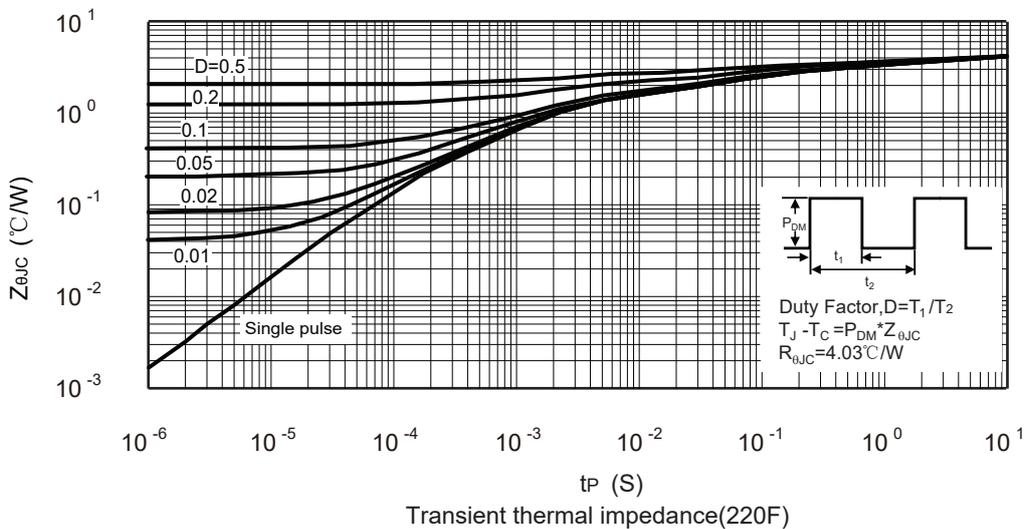
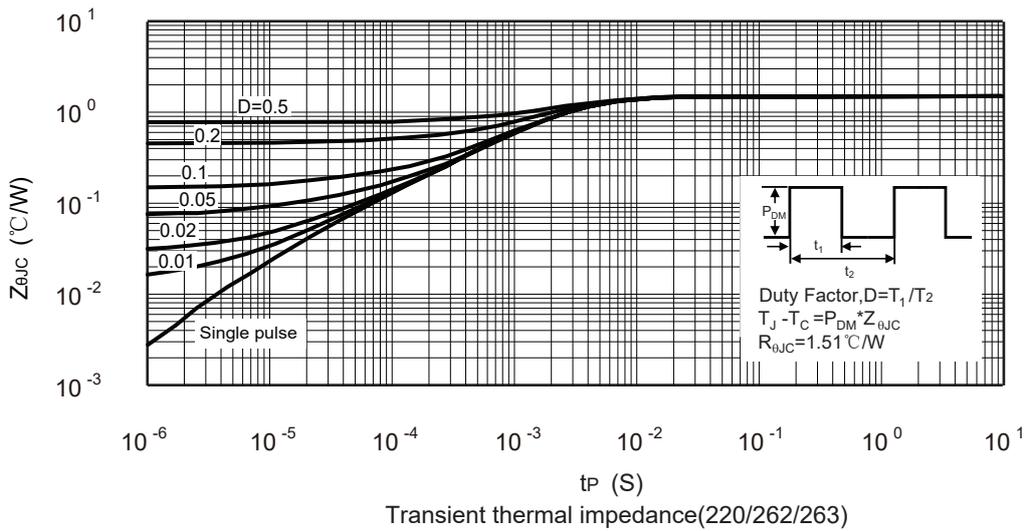
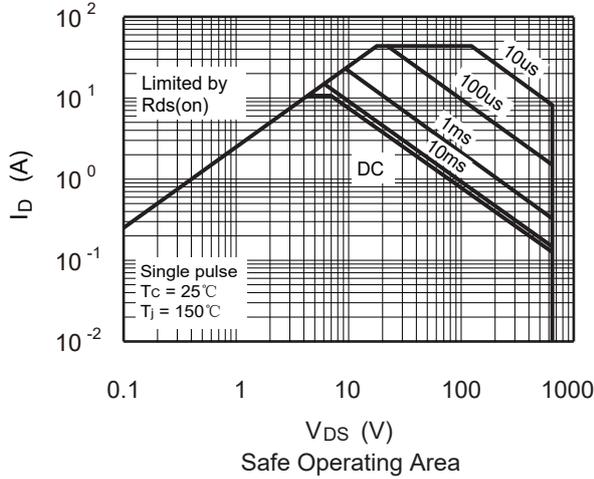
650V, 315mΩ typ., 11A N-Channel Super Junction Power MOSFET

Typical Characteristics



650V, 315mΩ typ., 11A N-Channel Super Junction Power MOSFET

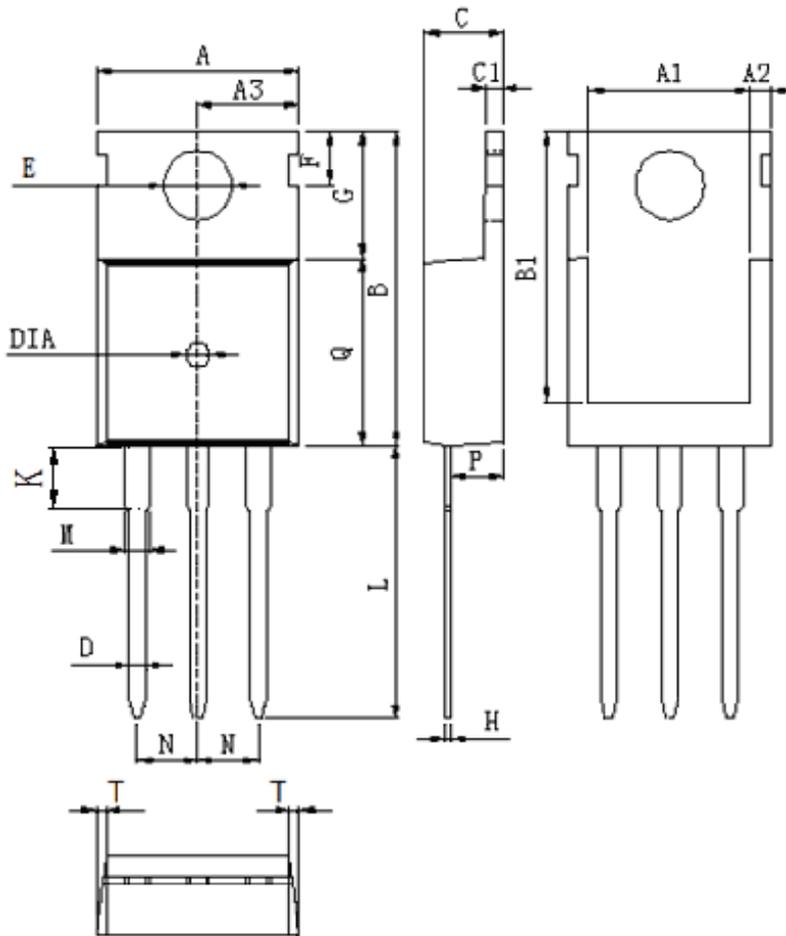
Typical Characteristics



Package Dimension

TO-220

Unit :mm

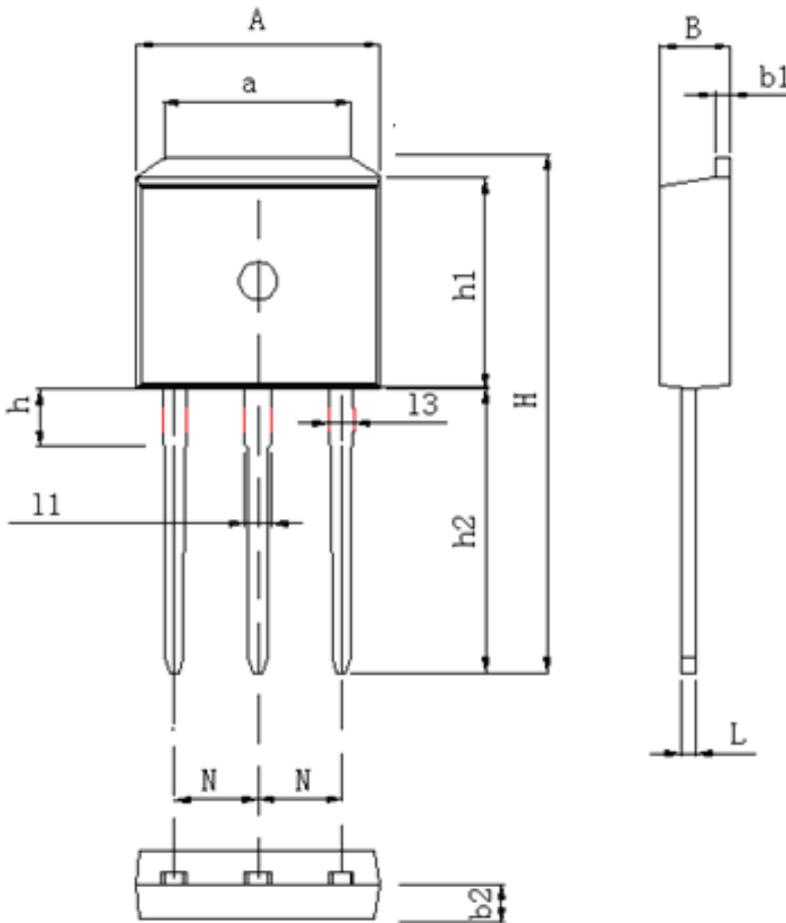


DIM	MILLIMETERS
A	10.0±0.3
A1	8.64±0.2
A2	1.15±0.1
A3	5.0±0.2
B	15.8±0.4
B1	13.2±0.3
C	4.56±0.1
C1	1.3±0.2
D	0.8±0.2
E	3.6±0.2
F	2.95±0.3
G	6.5±0.3
H	0.5±0.1
K	3.1±0.2
L	13.2±0.4
M	1.25±0.1
N	2.54±0.1
P	2.4±0.3
Q	9.0±0.3
T	W:0.35
DIA	⊙1.5(deep 0.2)

Package Dimension

TO-262

Unit :mm

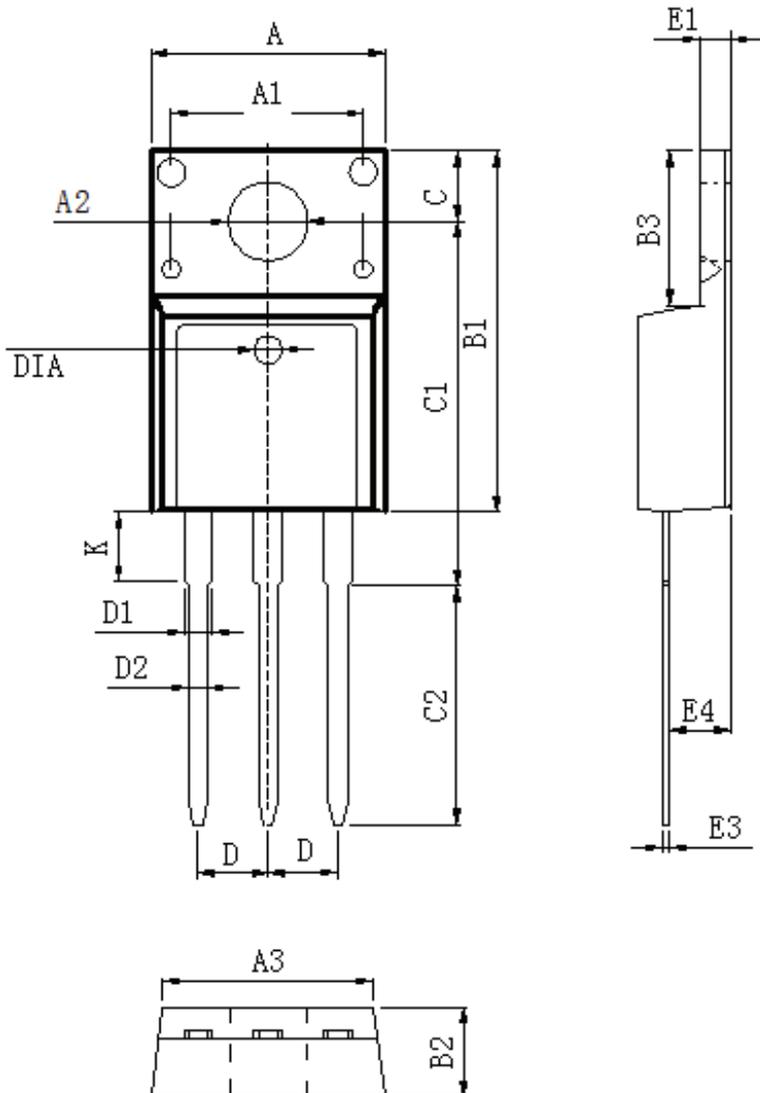


DIM	MILLIMETERS
A	9.98 ± 0.2
a	7.4 ± 0.4
B	4.5 ± 0.2
b1	1.3 ± 0.05
b2	2.4 ± 0.2
H	23.9 ± 0.3
h	3.1 ± 0.2
h1	9.16 ± 0.2
h2	13.2 ± 0.2
L	0.5 ± 0.1
l1	1.3 ± 0.1
l2	0.8 ± 0.1
N	2.45 ± 0.1

Package Dimension

TO-220F

Unit :mm



DIM	MILLIMETERS
A	10.16±0.3
A1	7.00±0.1
A2	3.3±0.2
A3	9.5±0.2
B1	15.87±0.3
B2	4.7±0.2
B3	6.68±0.4
C	3.3±0.2
C1	12.57±0.3
C2	10.02±0.5
D	2.54±0.05
D1	1.28±0.2
D2	0.8±0.1
K	3.1±0.3
E1	2.54±0.1
E3	0.5±0.1
E4	2.76±0.2
DIA	⊙1.5 (deep 0.2)