

Descriptions

This is 650V 15A N-Channel Enhancement Mode Power MOSFETF.

Features

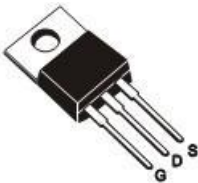
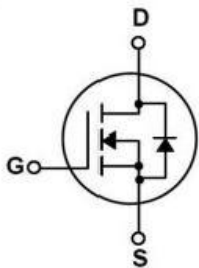
- Low thermal resistance
- Fast switching
- High input resistance
- RoHS compliant

Parameter	Value	Unit
V_{DS}	650	V
I_D	15	A
$R_{DS(ON)(max)}@10V$	0.6	Ω

Applications

- Electronic ballast
- Electronic transformer
- Switch mode power supply

Equivalent Circuit & Pinning



TO-220



TO-220FPL



TO-262(I²PAK)



TO-263(D²PAK)

Absolute Maximum Ratings(Ta=25°C)

PARAMETER	SYMBOL	VALUE	UNIT
Drain-source Voltage	V_{DS}	650	V
gate-source Voltage	V_{GS}	± 30	V
Continuous Drain Current TC=25°C	I_D	15*	A
Continuous Drain Current TC= 100°C	I_D	9.6*	A
Drain Current — Pulsed ①	I_{DM}	60*	A
Power Dissipation	P_D	TO-220:280	W
		220FPL:65	
		262/263:280	
Junction Temperature	T_J	150	°C
Storage Temperature	T_{STG}	-55-150	°C
Single Pulse Avalanche Energy②	E_{AS}	480	mJ

*Drain current limited by maximum junction temperature

Electrical Characteristics(Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Drain-source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	650			V
Breakdown Voltage Temperature Coefficient	$\Delta BV_{DSS}/\Delta T_J$	$I_D=250\mu A$, Referenced to 25°C		0.6		V/°C
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{GS}=V_{DS}, I_D=250\mu A$	3.0		5.0	V
Drain-source Leakage Current	I_{DSS}	$V_{DS}=650V, V_{GS}=0V, T_J=25^\circ C$			1	μA
		$V_{DS}=520V, V_{GS}=0V, T_J=125^\circ C$			10	μA
Forward Transconductance	g_{fs}	$V_{DS}=15V, I_D=7.5A$ ③		8		S

Electrical Characteristics(Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Gate-body Leakage Current ($V_{DS} = 0$)	I_{GSS}	$V_{GS} = \pm 30V$			± 100	nA
Static Drain-source On Resistance	$R_{DS(ON)}$	$V_{GS} = 10V, I_D = 7.5A$ ③		0.50	0.60	Ω
Input Capacitance	C_{iss}	$V_{GS} = 0V, V_{DS} = 25V, F = 1.0MHz$		2050		pF
Output Capacitance	C_{oss}			210		
Reverse transfer Capacitance	C_{rss}			18		
Turn -Off Delay Time	$T_d(off)$	$V_{DD} = 300V, I_D = 15.0A$ $R_G = 25\Omega$ ③		148		ns
Turn-on delay time	$T_d(on)$			32		
Rise time	T_r			73		
Fall time	T_f			75		
Total Gate Charge	Q_g	$I_D = 15.0A,$ $V_{DS} = 400V, V_{GS} = 10V$ ③		42		nC
Gate-to-Source Charge	Q_{gs}			12		
Gate-to-Drain Charge	Q_{gd}			16		
Continuous Diode Forward Current	I_S				15.0	A
Diode Forward Voltage	V_{SD}	$T_J = 25^\circ C, I_S = 15.0A$ $V_{GS} = 0V$ ③			1.4	V
Reverse Recovery Time	t_{rr}	$T_J = 25^\circ C, I_f = 15.0A, di/dt = 100A/\mu s$ ③		405		ns
Reverse Recovery Charge	Q_{rr}			3.3		μC
Gate resistance	R_G				7	Ω

Electrical Characteristic Curve

PARAMETER	SYMBOL	MAX		UNIT
		TO-220FPL	TO-220/262/263	
Thermal Resistance Junction-case	R_{thJC}	1.92	0.45	$^\circ C/W$
Thermal Resistance Junction-ambient	R_{thJA}	62.5	62.5	$^\circ C/W$

Note:

- ① Repetitive rating: Pulse width limited by maximum junction temperature
 ② Starting $T_J = 25^\circ C, V_{DD} = 50V, L = 4mH, R_G = 25\Omega, I_{AS} = 15A$
 ③ Pulse Test : Pulse width $\leq 300\mu s$, Duty cycle $\leq 2\%$

Electrical Characteristic Curve

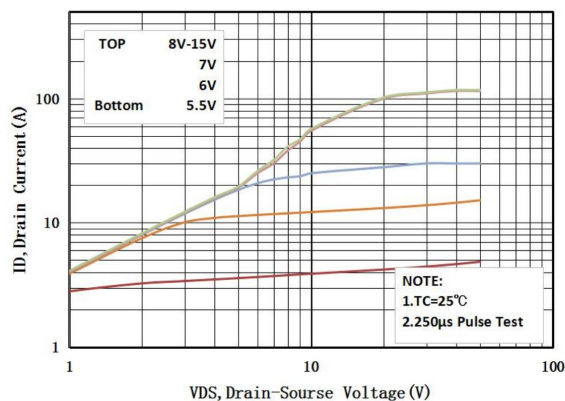
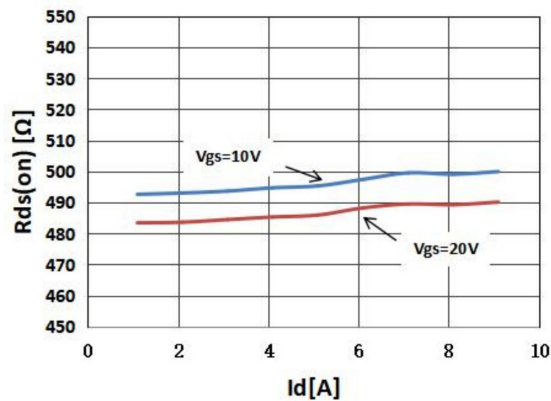
图 1 输出特性曲线, $T_C = 25^\circ\text{C}$ Fig1 Typical Output Characteristics, $T_C = 25^\circ\text{C}$ 

图 2 导通电阻与漏极电流和栅极电压曲线

Fig2 On-Resistance Vs.Drain Current and Gate Voltage

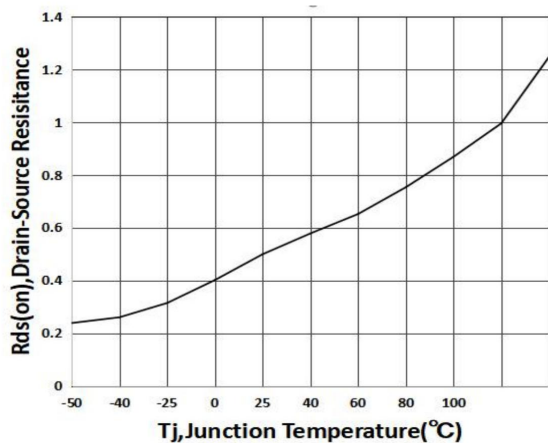


图 3 导通电阻与温度曲线

Fig3 On-Resistance Vs.Temperature

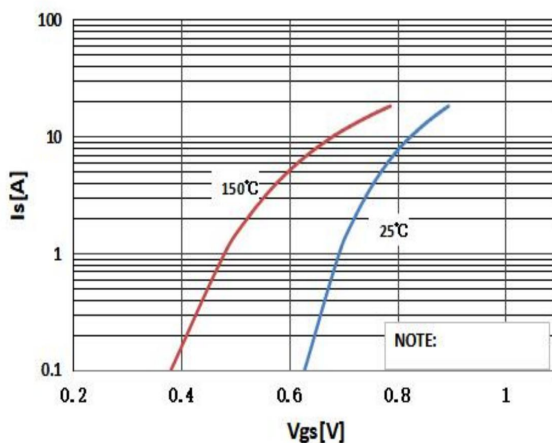


图 4 二极管正向电压曲线

Fig4 Typical Source-Drain Diode Forward Voltage

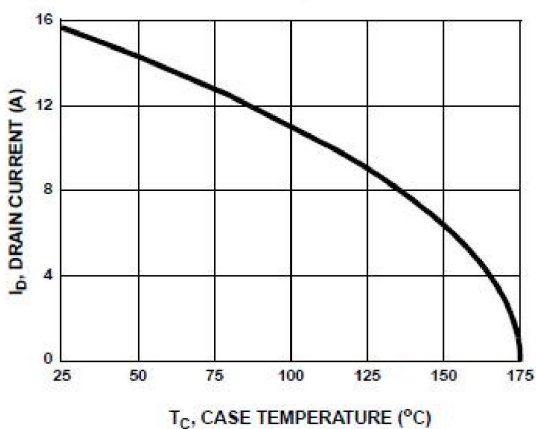


图 5 最大漏极电流与壳温曲线

Fig5 Maximum Drain Current Vs.Case Temperature

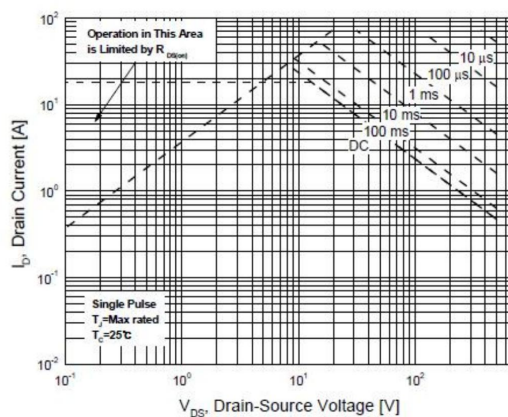


图 6 最大安全工作区曲线

Fig6 Maximum Safe Operating Area

Marking Instructions

COT
15N65

Note:

COT: Company Code

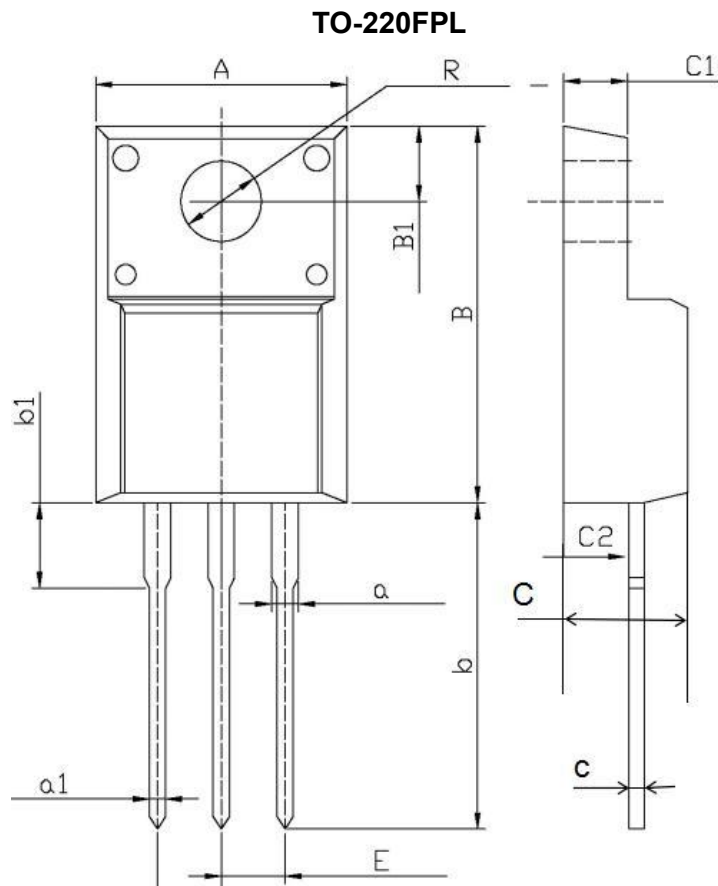
15N65: Product Type.

*****: *: Inner Code * : Year Code **: Week Code **: Lot Code.

Packaging SPEC

Part	Package	Marking	Packing method
CT15N65RA	TO-220	15N65	TUBE
CT15N65FP	TO-220FPL	15N65	TUBE
CT15N65A	TO-262	15N65	TUBE
CT15N65BD	TO-263	15N65	TUBE TAPE & REEL

Package Outline Dimensions

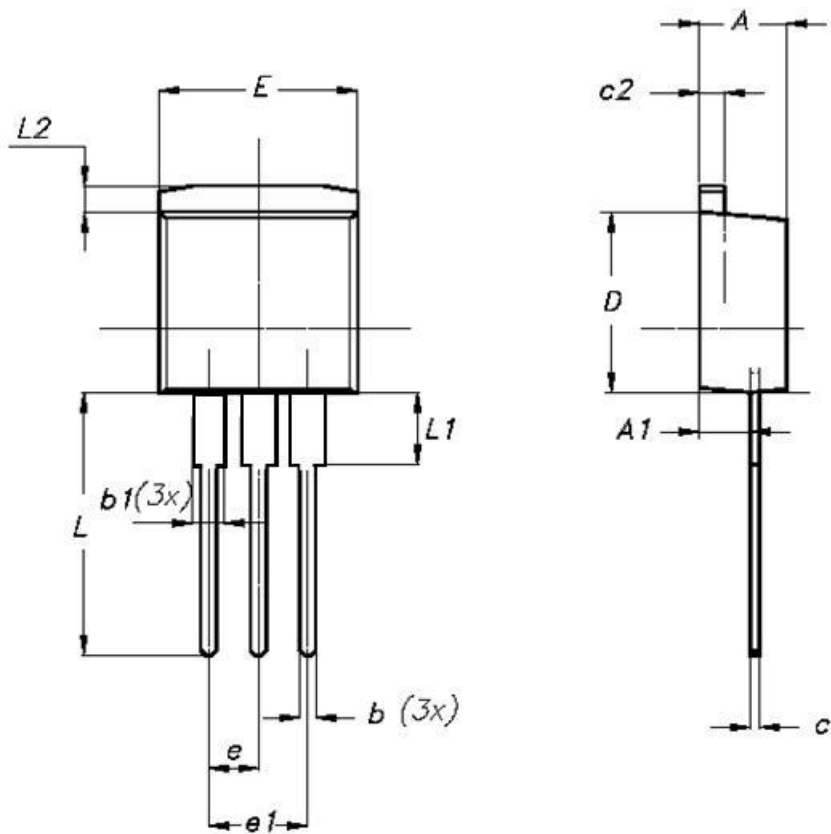


UNIT: mm

SYMBOL	min	nom	max	SYMBOL	min	nom	max
A	9.90		10.36	a	1.08		1.48
B	15.40		16.40	a1	0.70		0.90
B1	3.05		3.55	E	2.34		2.75
C	4.40		5.00	C1	2.25		2.85
c	0.40		0.60	C2	2.45		3.05
b	12.40		13.50	R	2.90		3.35
b1	2.90		3.90				⌀

Package Outline Dimensions

TO-262

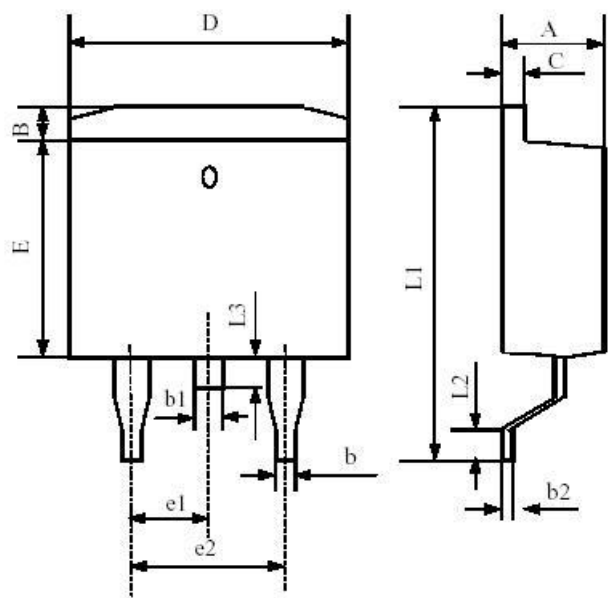


UNIT: mm

SYMBOL	min	nom	max	SYMBOL	min	nom	max
A	3.80		4.80	e		2.54	
A1	2.00		2.80	e1			5.30
b	0.60		1.00	E	9.90		10.70
b1	1.20		1.40	L	12.50		14.50
c	0.40		0.70	L1	0.80	1.00	1.20
c2	1.10		1.40	L2			1.50
D			9.60				

Package Outline Dimensions

TO-263



UNIT: mm

SYMBOL	min	nom	max	SYMBOL	min	nom	max
A	4.42		4.72	E	8.99		9.29
B	1.22		1.32	e1	2.44		2.64
b	0.76		0.86	e2	4.98		5.18
b1	1.22		1.32	L1	15.19		15.79
b2	0.33		0.43	L2	2.29		2.79
C	1.22		1.32	L3	1.30		1.75
D	9.95		10.25				