

■ PRODUCT CHARACTERISTICS

VDSS	650V
$R_{DS(on)Typ}(V_{GS} = 10V)$	0.75Ω
Qg@type	42nC
ID	12A

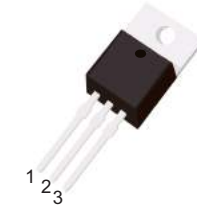
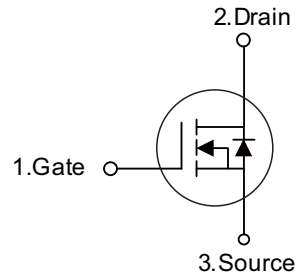
■ APPLICATIONS

- High frequency switching mode power supply
- Electronic lamp ballasts based on half bridge
- LED power supplies

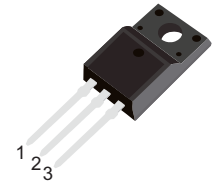
■ FEATURES

- * Ultra low gate charge
- * Low reverse transfer capacitance
- * Fast switching capability
- * Avalanche energy specified
- * Improved dv/dt capability, high ruggedness

Symbol



TO-220



TO-220F

■ ORDER INFORMATION

Order codes		Package	Packing
Halogen-Free	Halogen		
N/A	MOT12N65F	TO-220F	50 pieces/Tube
N/A	MOT12N65A	TO-220	50 pieces/Tube

■ ABSOLUTE MAXIMUM RATINGS ($T_C = 25^\circ\text{C}$, unless otherwise specified)

Parameter	Symbol	Ratings	Unit	
Drain to Source Voltage	V_{DSS}	650	V	
Gate to Source Voltage	V_{GSS}	±30	V	
Avalanche Current (Note 2)	I_{AR}	12	A	
Continuous Drain Current	Continuous	I_D	12	A
	Pulsed (Note 2)	I_{DM}	48	A
Avalanche Energy	Single Pulsed (Note 3)	E_{AS}	790	mJ
	Repetitive (Note 2)	E_{AR}	24	mJ
Peak Diode Recovery dv/dt (Note 4)	dv/dt	4.5	V/ns	
Power Dissipation	TO-220F	P_D	51	W
	TO-220AB		225	W
Junction Temperature	T_J	+150	°C	
Storage Temperature	T_{STG}	-55 ~ +150	°C	

Notes: 1. Absolute maximum ratings are those values beyond which the device could be permanently damaged.

Absolute maximum ratings are stress ratings only and functional device operation is not implied.

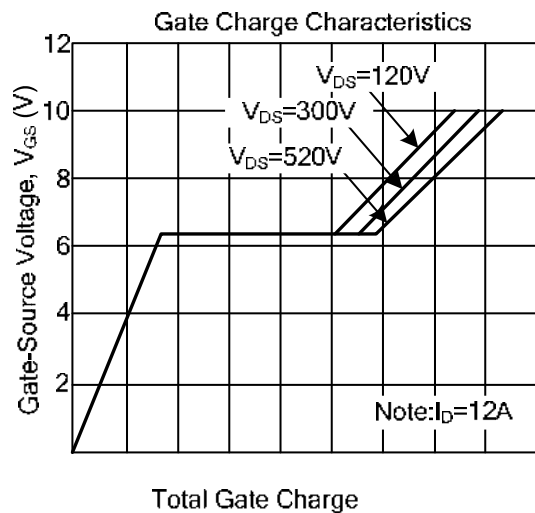
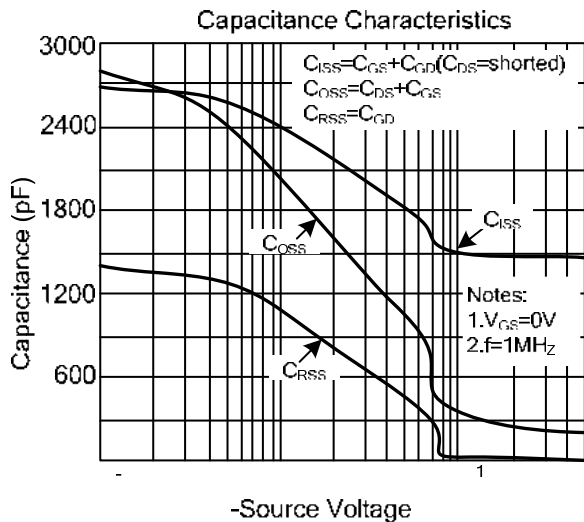
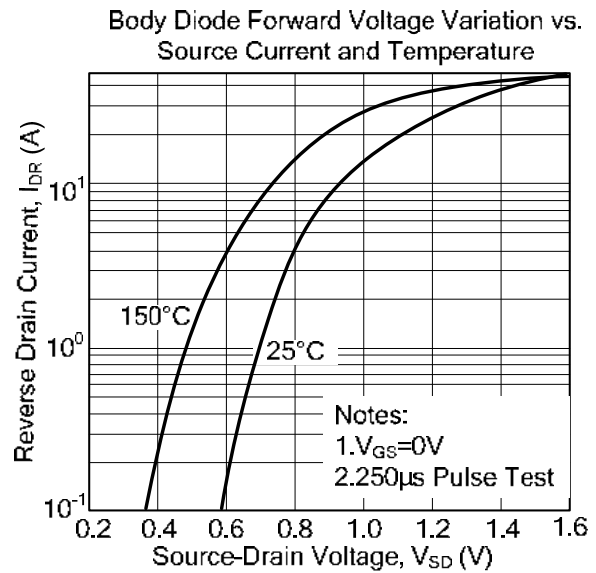
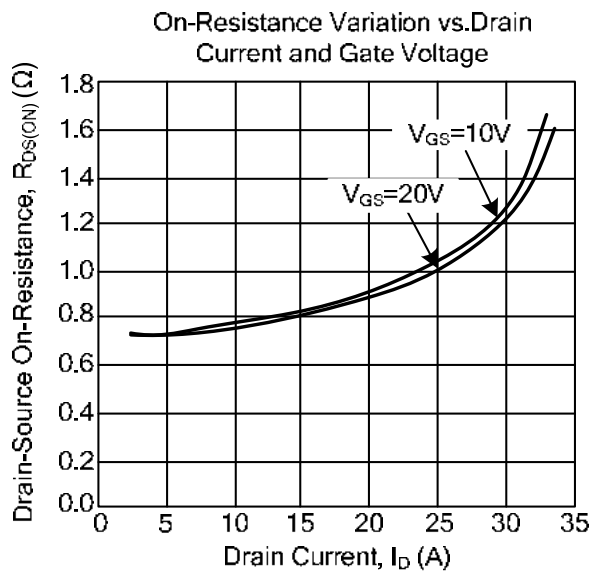
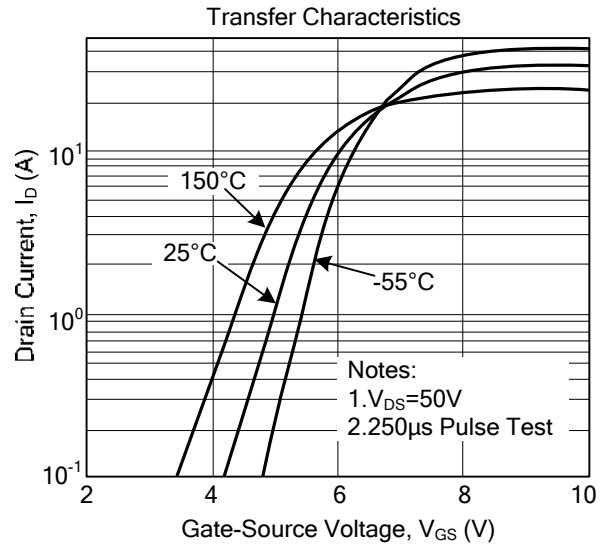
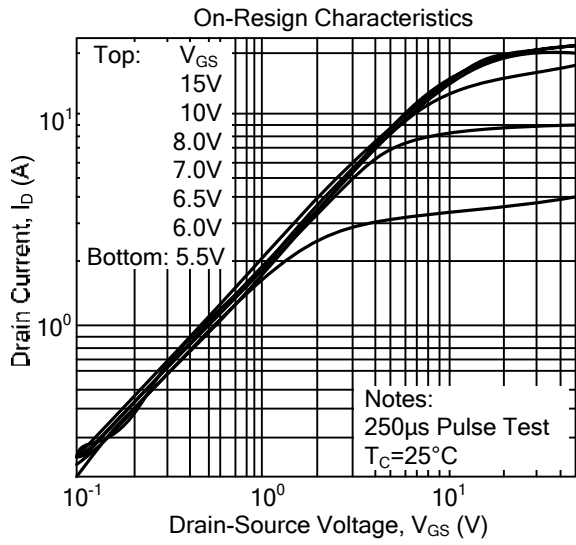
2. Repetitive Rating : Pulse width limited by maximum junction temperature
3. $L = 10\text{mH}$, $I_{AS} = 12\text{A}$, $V_{DD} = 50\text{V}$, $R_G = 25\Omega$, Starting $T_J = 25^\circ\text{C}$
4. $I_{SD} \leq 12\text{A}$, $di/dt \leq 200\text{A/s}$, $V_{DD} \leq BV_{DSS}$ Starting $T_J = 25^\circ\text{C}$

■ ELECTRICAL CHARACTERISTICS (T_c=25°C, unless otherwise noted)

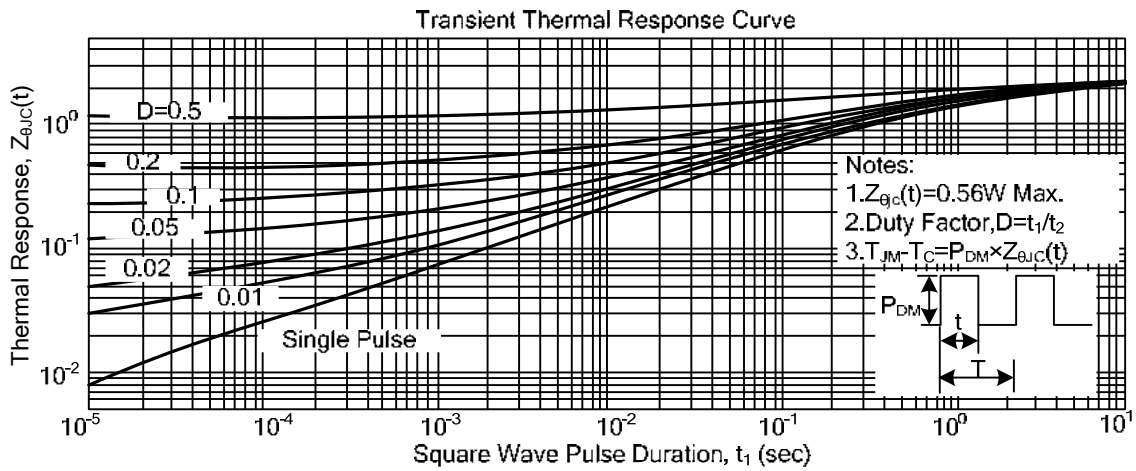
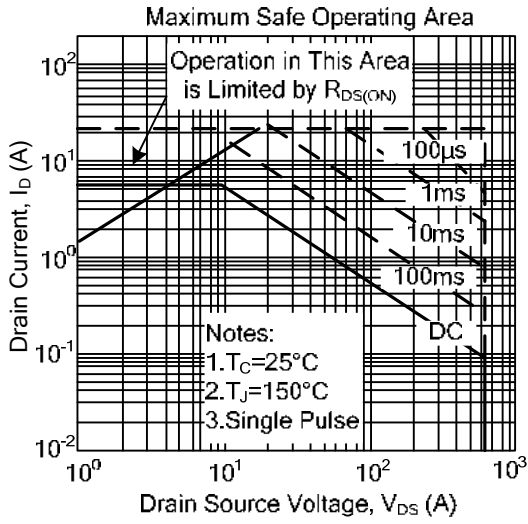
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Off characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} = 0 V, I _D	650	-	-	V
Drain-Source Leakage Current	I _{DSS}	V _{DS} = 650 V, V _{GS} = 0 V	-	-	1	μA
Gate-Source Leakage Current	I _{GSS}	V _{GS} = ±30 V, V _{DS} = 0 V	-	-	±100	nA
Breakdown Voltage Temperature Coefficient	ΔBV _{DSS} /ΔT _J	I _D =250μA, Referenced to 25°C	-	0.7	-	V/°C
On characteristics						
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} = V _{GS} , I _D = 250μA	2.0	-	4.0	V
Static Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} = 10V, I _D = 6.0A	-	0.75	0.8	Ω
Dynamic characteristics						
Input Capacitance	C _{ISS}	V _{DS} = 25 V, V _{GS} = 0 V, f = 1MHz	-	1480	-	pF
Output Capacitance	C _{OSS}		-	200	-	pF
Reverse Transfer Capacitance	C _{RSS}		-	25	-	pF
Switching characteristics						
Turn-On Delay Time	t _{D(ON)}	V _{DD} = 325V, I _D = 12A, R _G = 25Ω (Note 1, 2)	-	30	-	ns
Turn-On Rise Time	t _R		-	115	-	ns
Turn-Off Delay Time	t _{D(OFF)}		-	95	-	ns
Turn-Off Fall Time	t _F		-	85	-	ns
Total Gate Charge	Q _G	V _{DS} = 520V, I _D = 12A, V _{GS} = 10 V (Note 1, 2)	-	42	-	nC
Gate-Source Charge	Q _{GS}		-	8.6	-	nC
Gate-Drain Charge	Q _{GD}		-	21	-	nC
Source-drain diode ratings and characteristics						
Drain-Source Diode Forward Voltage	V _{SD}	V _{GS} = 0 V, I _S = 12A	-	-	1.4	V
Maximum Continuous Drain-Source Diode Forward Current	I _S		-	-	12	A
Maximum Pulsed Drain-Source Diode Forward Current	I _{SM}		-	-	48	A
Reverse Recovery Time	t _{RR}	V _{GS} = 0 V, I _S = 12A,	-	380	-	ns
Reverse Recovery Charge	Q _{RR}	dI _F /dt = 100 A/μs (Note 1)	-	3.5	-	μC

- Notes: 1. Pulse Test : Pulse width ≤300μs, Duty cycle ≤ 2%
 2. Essentially independent of operating temperature.

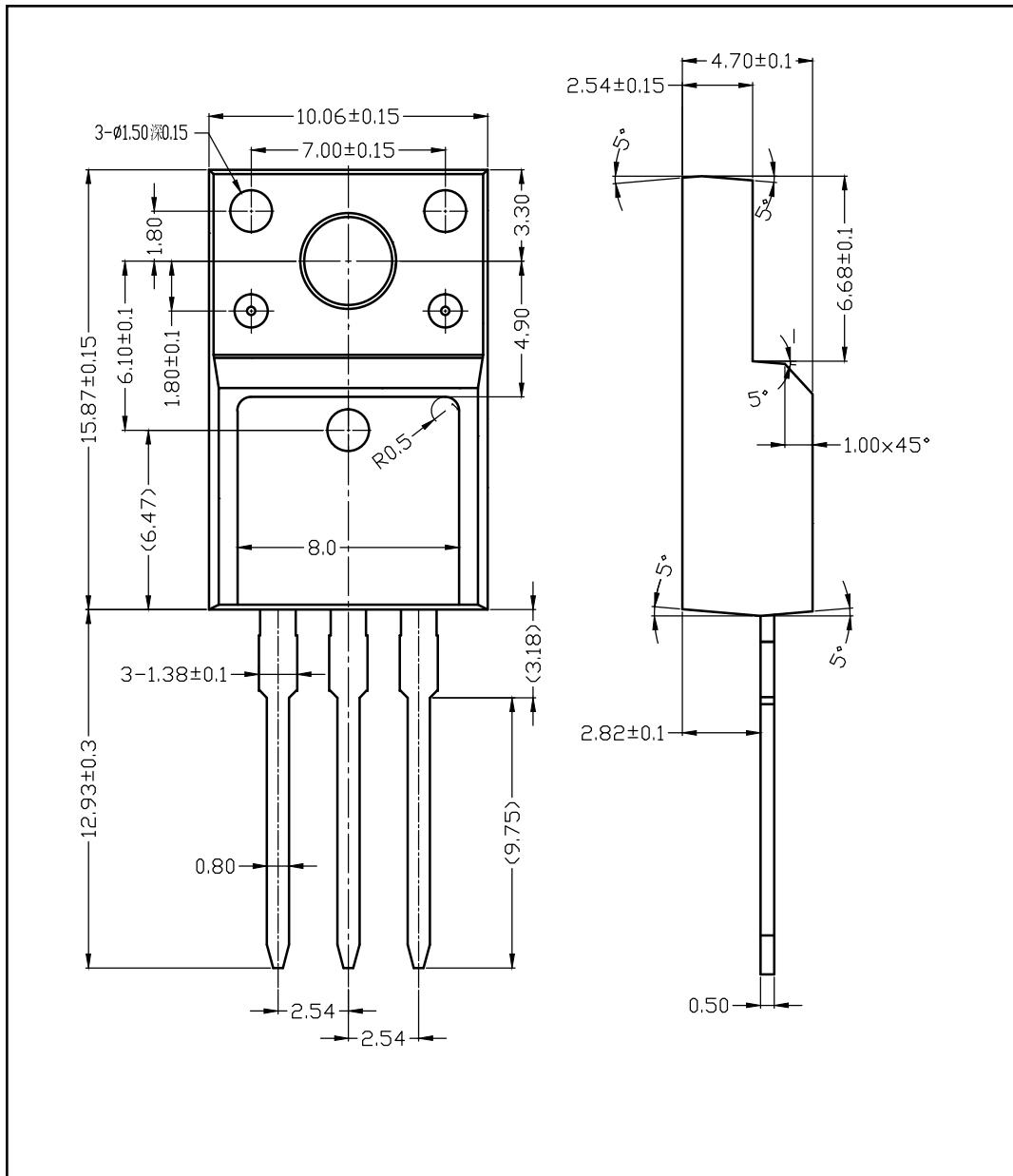
■ TYPICAL CHARACTERISTICS



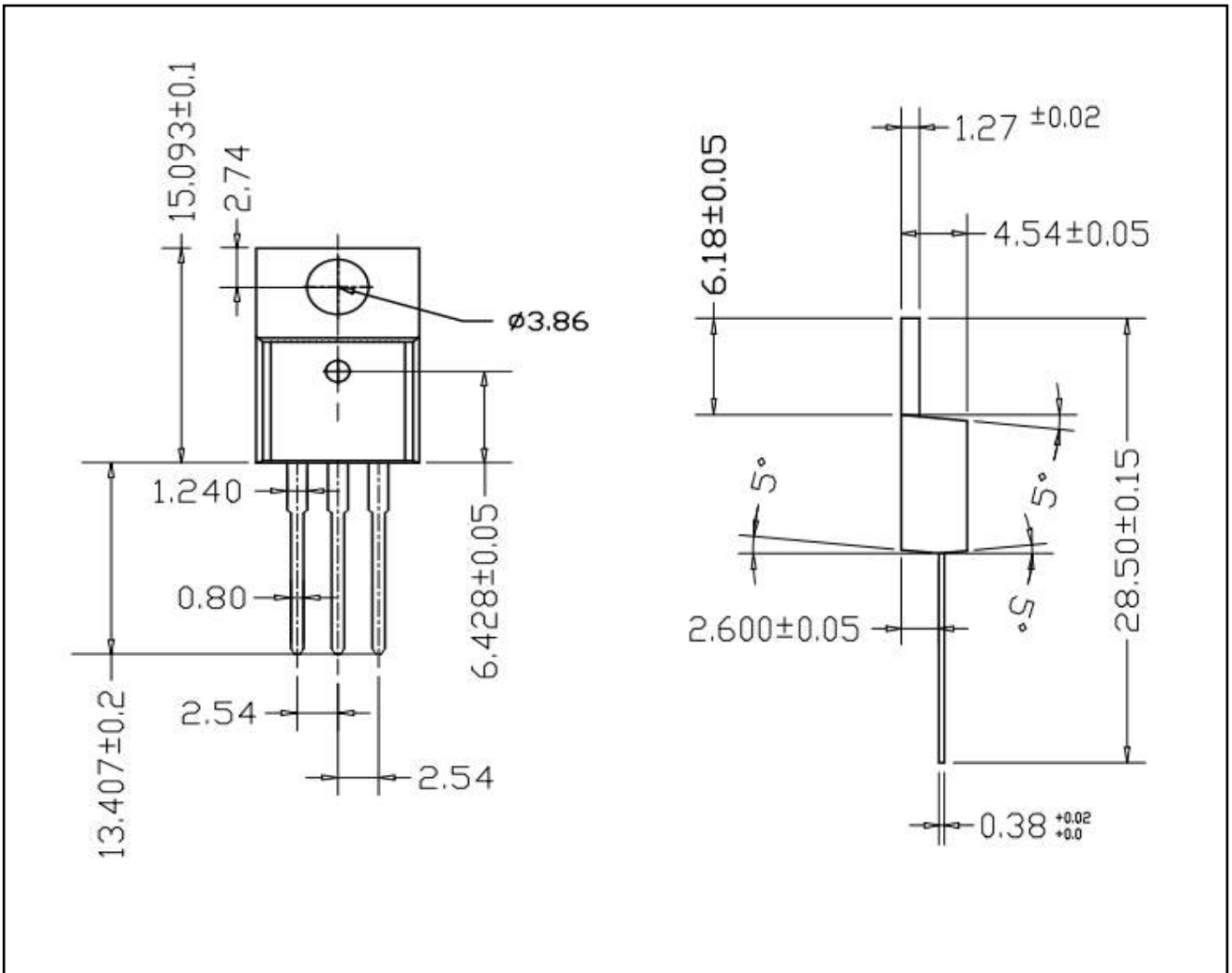
■ TYPICAL CHARACTERISTICS



■ TO-220F PACKAGE OUTLINE DIMENSIONS



■ TO-220 PACKAGE OUTLINE DIMENSIONS



X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for [MOSFET](#) category:

Click to view products by [MOT](#) manufacturer:

Other Similar products are found below :

[IRFD120](#) [JANTX2N5237](#) [BUK455-60A/B](#) [MIC4420CM-TR](#) [VN1206L](#) [NDP4060](#) [SI4482DY](#) [IPS70R2K0CEAKMA1](#) [SQD23N06-31L-GE3](#)
[TK16J60W,S1VQ\(O](#) [2SK2614\(TE16L1,Q\)](#) [DMN1017UCP3-7](#) [DMN1053UCP4-7](#) [SQJ469EP-T1-GE3](#) [NTE2384](#) [DMC2700UDMQ-7](#)
[DMN2080UCB4-7](#) [DMN61D9UWQ-13](#) [US6M2GTR](#) [DMN31D5UDJ-7](#) [DMP22D4UFO-7B](#) [DMN1006UCA6-7](#) [DMN16M9UCA6-7](#)
[STF5N65M6](#) [IRF40H233XTMA1](#) [STU5N65M6](#) [DMN6022SSD-13](#) [DMN13M9UCA6-7](#) [DMTH10H4M6SPS-13](#) [DMN2990UFB-7B](#)
[IPB80P04P405ATMA2](#) [2N7002W-G](#) [MCAC30N06Y-TP](#) [MCQ7328-TP](#) [BXP7N65D](#) [BXP4N65F](#) [AOL1454G](#) [WMJ80N60C4](#) [BXP2N20L](#)
[BXP2N65D](#) [BXT1150N10J](#) [BXT1700P06M](#) [TSM60NB380CP](#) [ROG](#) [RQ7L055BGTCR](#) [DMNH15H110SK3-13](#) [SLF10N65ABV2](#)
[BSO203SP](#) [BSO211P](#) [IPA60R230P6](#) [IPA60R460CE](#)