

TO-263-2L Plastic-Encapsulate MOSFETS

IRFB640 MOSFET(N-Channel)

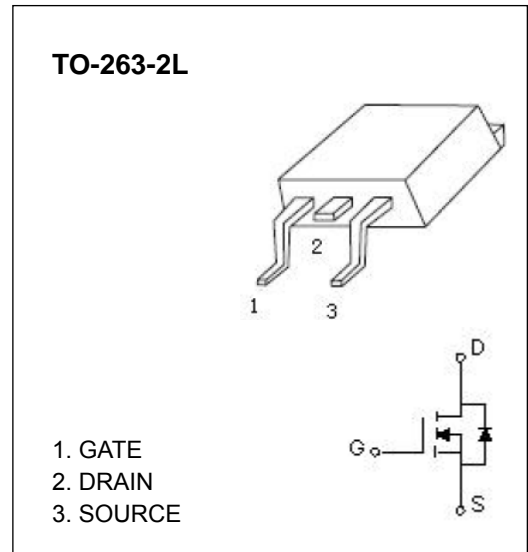
FEATURE

- Dynamic dv/dt Rating
- Repetitive Avalanche Rated
- Fast Switching
- Ease of Paralleling
- Simple Drive Requirement

DESCRIPTION

Third Generation HEXFETs from international Rectifier provide the designer with the best combination of fast switching , ruggedized device design, low on-resistance and cost effectiveness.

The TO-220-3L package is universally preferred for all commercial-industrial applications at power dissipation levels to approximately 50 watts. The low thermal resistance and low package cost of the TO-220-3L contribute to its wide acceptance throughout the industry.



MAXIMUM RATINGS($T_a=25^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter	Value	Units
I_D	Continuous Drain Current, V_{GS} @ 10 V	18	A
P_D	Power Dissipation	2	W
	Linear Derating Factor	1.0	W/ $^{\circ}\text{C}$
V_{GS}	Gate-Source Voltage	± 20	V
E_{AS}	Single Pulse Avalanche Energy (note 1)	580	mJ
$R_{\theta JA}$	Thermal Resistance from Junction to Ambient	62.5	$^{\circ}\text{C}/\text{W}$
T_J	Junction Temperature	150	$^{\circ}\text{C}$
T_{STG}	Storage Temperature	-55~+150	$^{\circ}\text{C}$

ELECTRICAL CHARACTERISTICS (T_a=25°C unless otherwise specified)

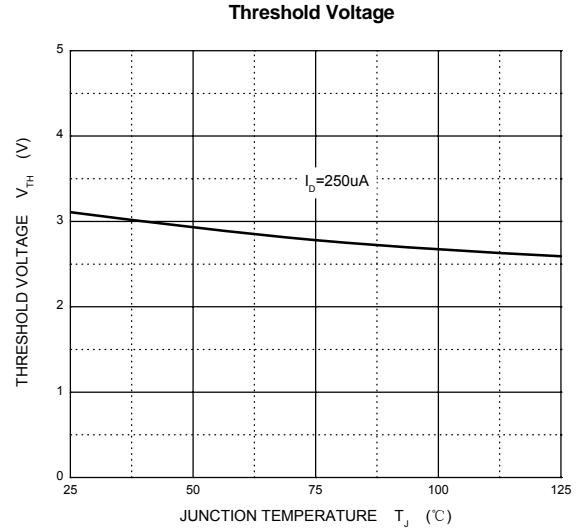
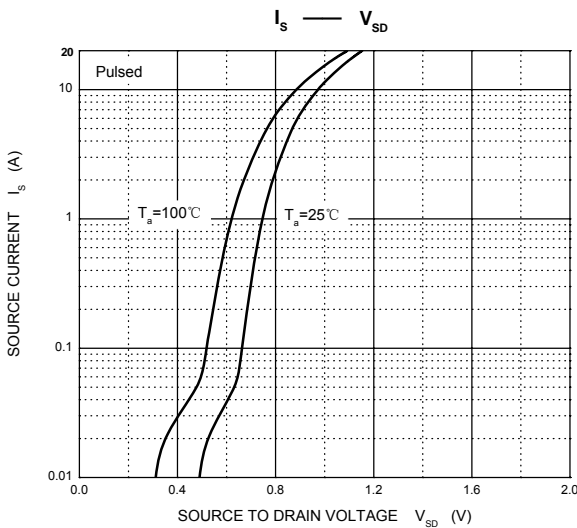
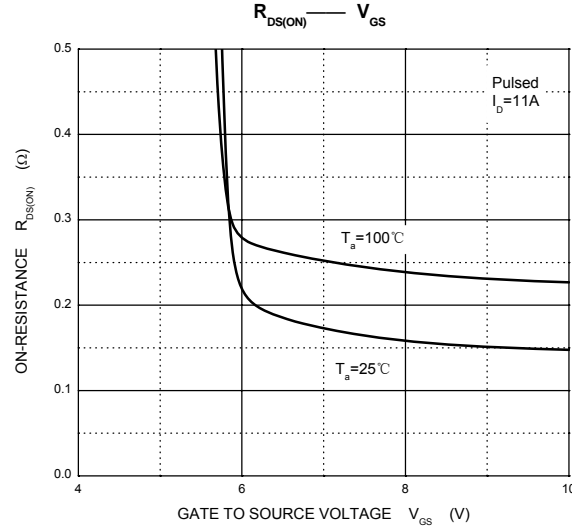
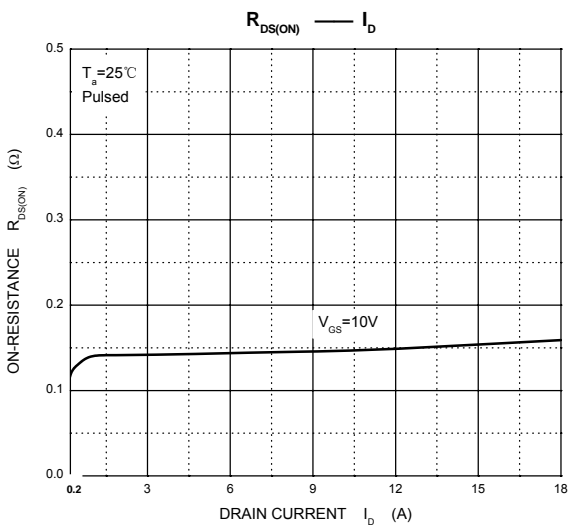
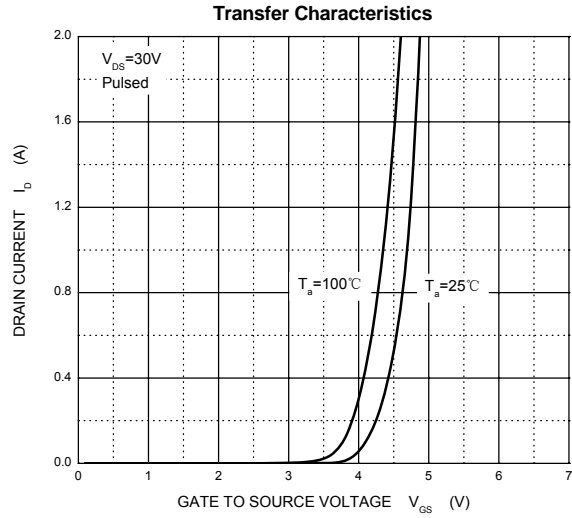
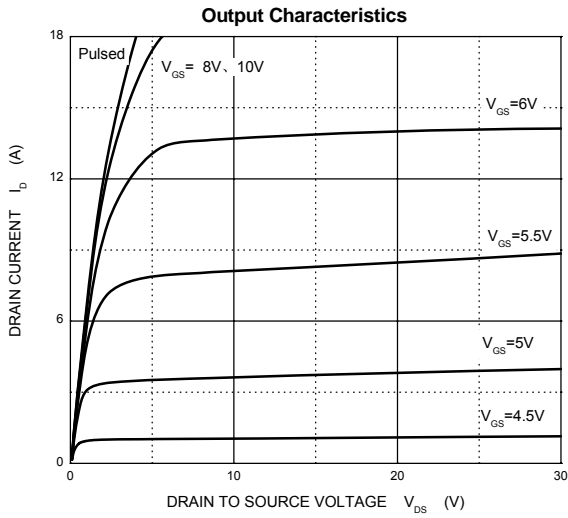
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =250μA	200			V
Gate-threshold voltage	V _{(GS)th}	V _{DS} =V _{GS} , I _D =250μA	2		4	
Gate-body leakage	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±100	nA
Zero gate voltage drain current	I _{DSS}	V _{DS} =200V, V _{GS} =0V			25	μA
Drain-source on-resistance (note 2)	R _{DS(on)}	V _{GS} =10V, I _D =11A			0.18	Ω
Forward transconductance (note 2)	g _{fs}	V _{DS} =50V, I _D =11A	6.7			S
Diode forward voltage (note 2)	V _{SD}	I _S =18A, V _{GS} =0V			2	V
Input capacitance (note 3)	C _{iss}	V _{DS} =25V, V _{GS} =0V, f=1MHz		1300		pF
Output capacitance (note 3)	C _{oss}			430		
Reverse transfer capacitance (note 3)	C _{rss}			130		
Turn-on time(note 2,3)	t _{d(on)}	V _{DD} =100V, R _D =5.4Ω, I _D =18A, R _G =9.1Ω		14		ns
Rise time	t _r			51		
Turn-off time (note 2,3)	t _{d(off)}			45		
Fall time (note 2,3)	t _f			36		

Notes:

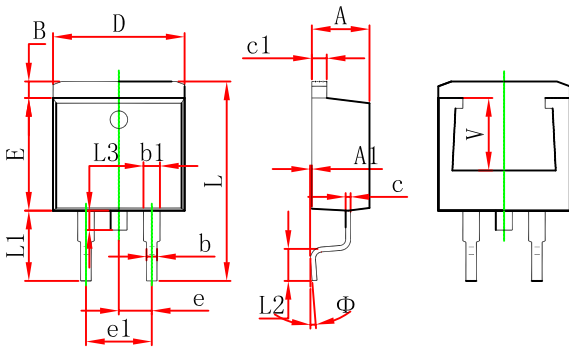
1. V_{DD}=50V, starting T_J=25°C, L=2.7mH, R_G=25Ω, I_{AS}=18A.
2. Pulse test: Pulse width≤300μs, duty cycle≤2%.
3. These parameters have no way to verify.

Typical Characteristics

IRFB640

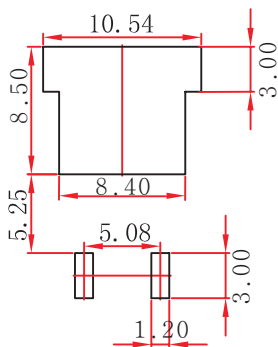


TO-263-2L Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	4.470	4.670	0.176	0.184
A1	0.000	0.150	0.000	0.006
B	1.120	1.420	0.044	0.056
b	0.710	0.910	0.028	0.036
b1	1.170	1.370	0.046	0.054
c	0.310	0.530	0.012	0.021
c1	1.170	1.370	0.046	0.054
D	10.010	10.310	0.394	0.406
E	8.500	8.900	0.335	0.350
e	2.540 TYP.		0.100 TYP.	
e1	4.980	5.180	0.196	0.204
L	14.940	15.500	0.588	0.610
L1	4.950	5.450	0.195	0.215
L2	2.340	2.740	0.092	0.108
L3	1.300	1.700	0.051	0.067
Φ	0°		8°	
V	5.600 REF.		0.220 REF.	

TO-263-2L Suggested Pad Layout



Note:

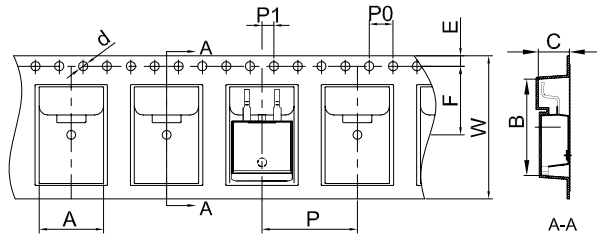
1. Controlling dimension: in millimeters.
2. General tolerance: ± 0.05 mm.
3. The pad layout is for reference purposes only.

NOTICE

JCET reserve the right to make modifications, enhancements, improvements, corrections or other changes without further notice to any product herein. JCET does not assume any liability arising out of the application or use of any product described herein.

TO-263-2L Tape and Reel

TO-263-2L Embossed Carrier Tape



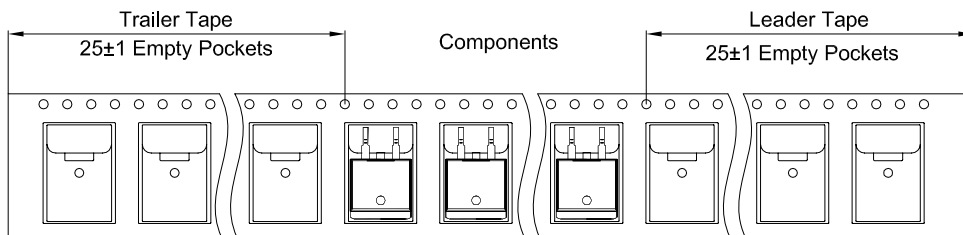
Packaging Description:

TO-263-2L parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 800 units per 13" or 33.0 cm diameter reel. The reels are clear in color and is made of polystyrene plastic (anti-static coated).

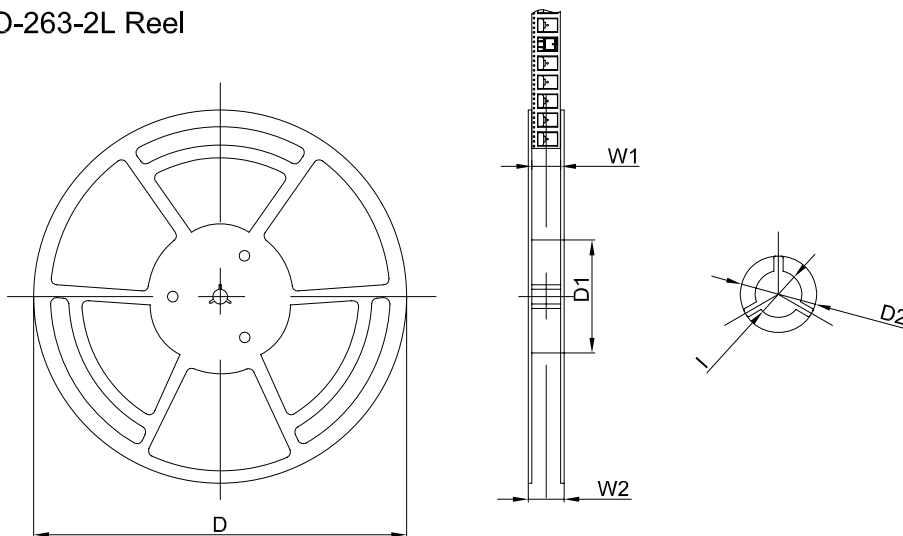
Dimensions are in millimeter

Pkg type	A	B	C	d	E	F	P0	P	P1	W
TO-263-2L	10.80	16.13	5.21	Ø1.55	1.75	11.50	4.00	16.00	2.00	24.00
(Tolerance)	+/-0.1	+/-0.1	+/-0.1	+/-0.1	+/-0.1	+/-0.1	+/-0.1	+/-0.1	+/-0.1	+0.3/-0.1

TO-263-2L Tape Leader and Trailer



TO-263-2L Reel



Dimensions are in millimeter

Reel Option	D	D1	D2	W1	W2	I
13" Dia	Ø330.00	100.00	Ø21.00	24.4	30.4	Ø13.00
Tolerance	+/-2	+/-1	+/-1	+/-1	+/-1	+/-1

REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)	G.W.(kg)
800 pcs	13 inch	800 pcs	340×336×36	8,000 pcs	400×353×365	