

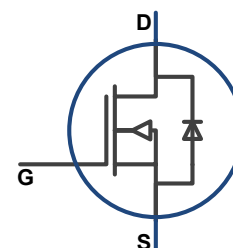
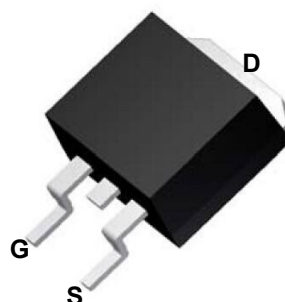
## Depletion-Mode Power MOSFET

### General Features

- Depletion Mode (Normally On)
- Proprietary Advanced Planar Technology
- Rugged Polysilicon Gate Cell Structure
- Fast Switching Speed
- RoHS Compliant
- Halogen-free available

$BV_{DSX}$	$R_{DS(ON)}$ (Max.)	$I_D$
200V	100mΩ	16A

### TO-263



### Applications

- Suppressing surge current
- Normally-on Switches
- Converters
- Synchronous Rectification
- Linear Amplifier
- Constant Current Source
- Protection Circuits

### Ordering Information

Part Number	Package	Marking	Remark
DMB2014	TO-263	2014	Halogen Free

### Absolute Maximum Ratings

 $T_A=25^{\circ}\text{C}$  unless otherwise specified

Symbol	Parameter	DMB2014	Unit
$V_{DSX}$	Drain-to-Source Voltage <sup>[1]</sup>	200	V
$V_{DGX}$	Drain-to-Gate Voltage <sup>[1]</sup>	200	V
$I_D$	Continuous Drain Current	16	A
$I_{DM}$	Pulsed Drain Current <sup>[2]</sup>	64	
$P_D$	Power Dissipation	230	W
	Derating Factor above 25°C	1.85	W/°C
$V_{GS}$	Gate-to-Source Voltage	±20	V
$T_L$	Soldering Temperature	300	°C
	Distance of 1.6mm from case for 10 seconds		
$T_j$ and $T_{STG}$	Operating and Storage Temperature Range	-55 to 150	

Caution: Stresses greater than those listed in the "Absolute Maximum Ratings" may cause permanent damage to the device.

### Thermal Characteristics

Symbol	Parameter	DMB2014	Unit
$R_{\theta JC}$	Thermal Resistance, Junction-to-Case	0.54	K/W

## Electrical Characteristics

### OFF Characteristics

 $T_A = 25^\circ\text{C}$  unless otherwise specified

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Conditions
$BV_{DSX}$	Drain-to-Source Breakdown Voltage	200	--	--	V	$V_{GS} = -5V, I_D = 250\mu A$
$I_{D(OFF)}$	Drain-to-Source Leakage Current	--	--	1	$\mu A$	$V_{DS} = 200V, V_{GS} = -5V$
		--	--	1	mA	$V_{DS} = 200V, V_{GS} = -5V$ $T_J = 125^\circ\text{C}$
$I_{GSS}$	Gate-to-Source Leakage Current	--	--	1	$\mu A$	$V_{GS} = +20V, V_{DS} = 0V$
		--	--	-1		$V_{GS} = -20V, V_{DS} = 0V$

### ON Characteristics

 $T_A = 25^\circ\text{C}$  unless otherwise specified

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Conditions
$I_{DSS}$	Saturated Drain-to-Source Current	16	--	--	A	$V_{GS} = 0V, V_{DS} = 25V$ [3]
$R_{DS(ON)}$	Static Drain-to-Source On-Resistance	--	80	100	$m\Omega$	$V_{GS} = 0V, I_D = 8A$ [3]
		--	65	90	$m\Omega$	$V_{GS} = 5V, I_D = 8A$ [3]
$V_{GS(OFF)}$	Gate-to-Source Cut-off Voltage	-3.3	--	-1.5	V	$V_{DS} = 3V, I_D = 8\mu A$
gfs	Forward Transconductance	--	6.1	--	S	$V_{DS} = 20V, I_D = 8A$

### Dynamic Characteristics

Essentially independent of operating temperature

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Conditions
$C_{ISS}$	Input Capacitance	--	--	--	pF	$V_{GS} = -5V$ $V_{DS} = 25V$ $f = 1.0MHz$
$C_{OSS}$	Output Capacitance	--	--	--		
$C_{RSS}$	Reverse Transfer Capacitance	--	--	--		
$Q_G$	Total Gate Charge	--	--	--	nC	$V_{GS} = -5V \sim 5V$ $V_{DS} = 100V, I_D = 8A$
$Q_{GS}$	Gate-to-Source Charge	--	--	--		
$Q_{GD}$	Gate-to-Drain (Miller) Charge	--	--	--		

### Resistive Switching Characteristics

Essentially independent of operating temperature

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Conditions
$t_{d(ON)}$	Turn-on Delay Time	--	--	--	ns	$V_{GS} = -5V \sim 5V$ $V_{DD} = 100V, I_D = 8A$ $R_G = 20\Omega$
$t_{rise}$	Rise Time	--	--	--		
$t_{d(OFF)}$	Turn-off Delay Time	--	--	--		
$t_{fall}$	Fall Time	--	--	--		

**Source-Drain Diode Characteristics**T<sub>A</sub>=25°C unless otherwise specified

Symbol	Parameter	Min	Typ.	Max.	Units	Test Conditions
V <sub>SD</sub>	Diode Forward Voltage	--	--	1.5	V	I <sub>SD</sub> =8.0 A, V <sub>GS</sub> = -10 V

NOTE:

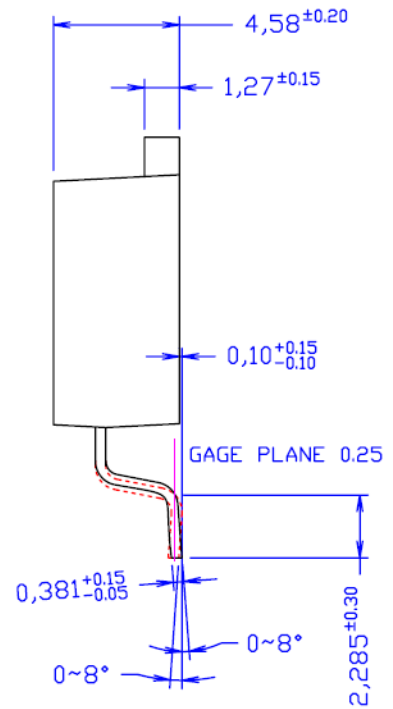
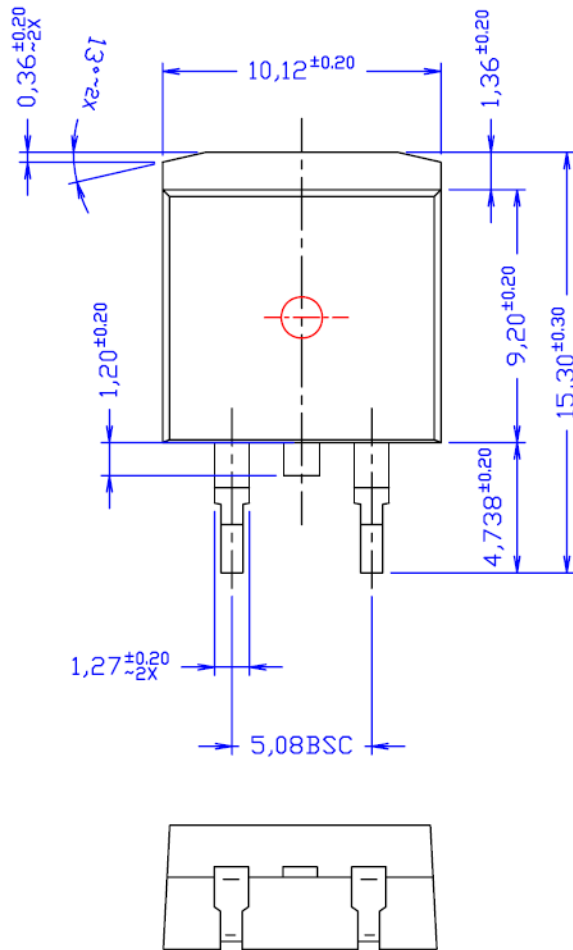
[1] T<sub>J</sub>=+25°C to +150°C

[2] Repetitive rating, pulse width limited by maximum junction temperature.

[3] Pulse width≤380μs; duty cycle≤2%.

Package Dimensions

TO-263



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